Beverage & Food World

SEPTEMBER 2001
Price : Rs. 40
Vol. 28 • No. 9
ISSN-0970-6194

REGISTERED WITH THE REGISTRAR OF NEWSPAPERS FOR INDIA UNDER No. RN 31862/77

REGD. NO.TECH- 47/1256/MBI/2001

Special Feature:
FOOD TECH 2001

Cheers!

The next time you're drinking mineral water, think of us

While drinking mineral water these days we expect the same consistency in quality and taste. The feeling of total safety from water borne diseases is taken for granted. But have you given a thought to the role played by Kumar Process Consultants & Chemicals Pvt. Ltd.?

For the past **20 years**, filters supplied by us have been used by the entire spectrum of mineral water manufacturers and mineral water plant suppliers all over India and Nepal to ensure consistent quality which confirm to WHO / BIS standards for potable water.

We offer an entire range of filters such as **bag filters, stacked ring filters, cartridge filters, Activated Carbon filters, etc.** to offer the right solution for almost every filtration need — be it for mineral water, soft drink, fruit juice, aerated drinks, IMFL, beer etc. Our entire range of filters are backed by excellent after sales service.

If you are looking for the right partner for your filtration needs, call Kumar Process Consultants & Chemicals Pvt. Ltd.

The next time you're sipping mineral water, think of us

We also offer filters for many other applications

KUMAR PROCESS CONSULTANTS & CHEMICALS PVT. LTD.
Sales & H.O.: 230/4, Ashoka House, Behind Hotel Sheetal Arch, Linking Road, Bandra (W), Mumbai 400 050.
Telfax.: 645 1964, 642 0637, 643 2512 Website: www.kumarfilter.com email: kumarfil@vsnl.com

HYDERABAD:
Sankalp Corporation
Tel: (040) 763 3006
Fax: (040) 763 0607

CHENNAI:
Suraj Enterprises
Tel: (044) 434 7490
Fax: (044) 434 0904

INDORE:
Dalal Agencies
Tel: (0731) 265 285
Fax: (0731) 436 233

NEW DELHI:
Pharma Technik
Tel: (011) 631 6736
Fax: (011) 631 8850

OVER 20 YEARS OF EXPERTISE IN FILTRATION
Call us for Total Filtration Solutions

Siddharth Ads

Quality System

Quality
Endorsed
Company

PRINCE
MUMBAI
INDIA

The F&B world is in safe hands with...

PRINCE
CRATES
AN ISO 9001 Company

Model No. 2908/2912
Bakeries
Model No. 2979
Dairy Products
Model No. 6435 CL
Fisheries
Model No. 2924
Softdrinks
Model No. 2917/2922
Confectioneries
Model No. 2955 CLP
Dairies
Model No. 2976
Fruits & Vegetables
Model No. 2829TP/2932TP
Icecreams/ Utility

The *widest* range of plastic crates for **Handling, Transporting and Storing** in the Food Processing industry.

The crates shown above are only a part of our wide range.

PRINCE MULTIPLAST PVT. LTD. AN ISO 9001 COMPANY: Manufacturers of Crates and Blow Moulded Containers.
Amar House, Plot No. 103, Road No. 12, M.I.D.C., Andheri (E), Mumbai - 400 093. India.
Tel: 91-22-6920022/23/24/25/26. Fax: 6920033/6920044. Email: sales@princemultiplast.com Website: www.princemultiplast.com

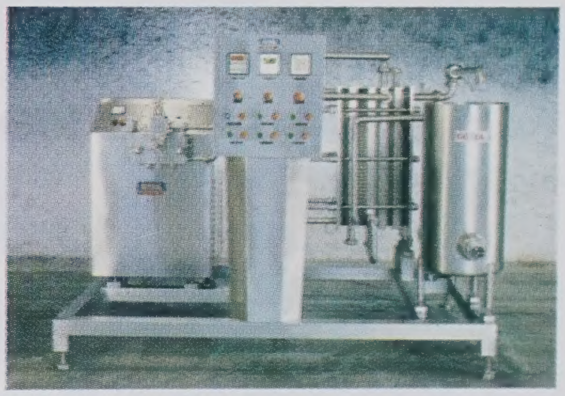
rmx/prince/3064/2000

JAS-ANZ
ICS
ISO 9002 : 1994
Reg. No R91/239
Joint Accreditation System
of Australia & New Zealand

*Add Value to
your products with GOMA*

HOMOGENISER
Capacity : 100 LPH to 30,000 LPH
- Developed under NDDB's guidance is **Number One in India**
- **Imported Stellite Valves**
- Homogenise - Fat globule **less than 1 micron**
- More than 300 satisfied customers in India & abroad.

HIGH PRESSURE CRATE WASHER
Capacity :1000 to 1200 CRATES per hour
- Compact design for space saving & complete stainless steel construction
- No need of steam, chemicals, hot water and detergent
- Low power & water consumption
- Ensures optimum cleaning in the fastest possible time



SKID MOUNTED
MINI DAIRY MODULE
Capacity :500 LPH to 5000 LPH
- Easy Installation
- Factory tested
- Compact Design Space saving
- Ready to start

GOMA undertakes Turnkey Projects in Dairy & Ice Cream products.

GOMA an ISO-9002 Company

GOMA provides quick and reliable service & spares of the shelf

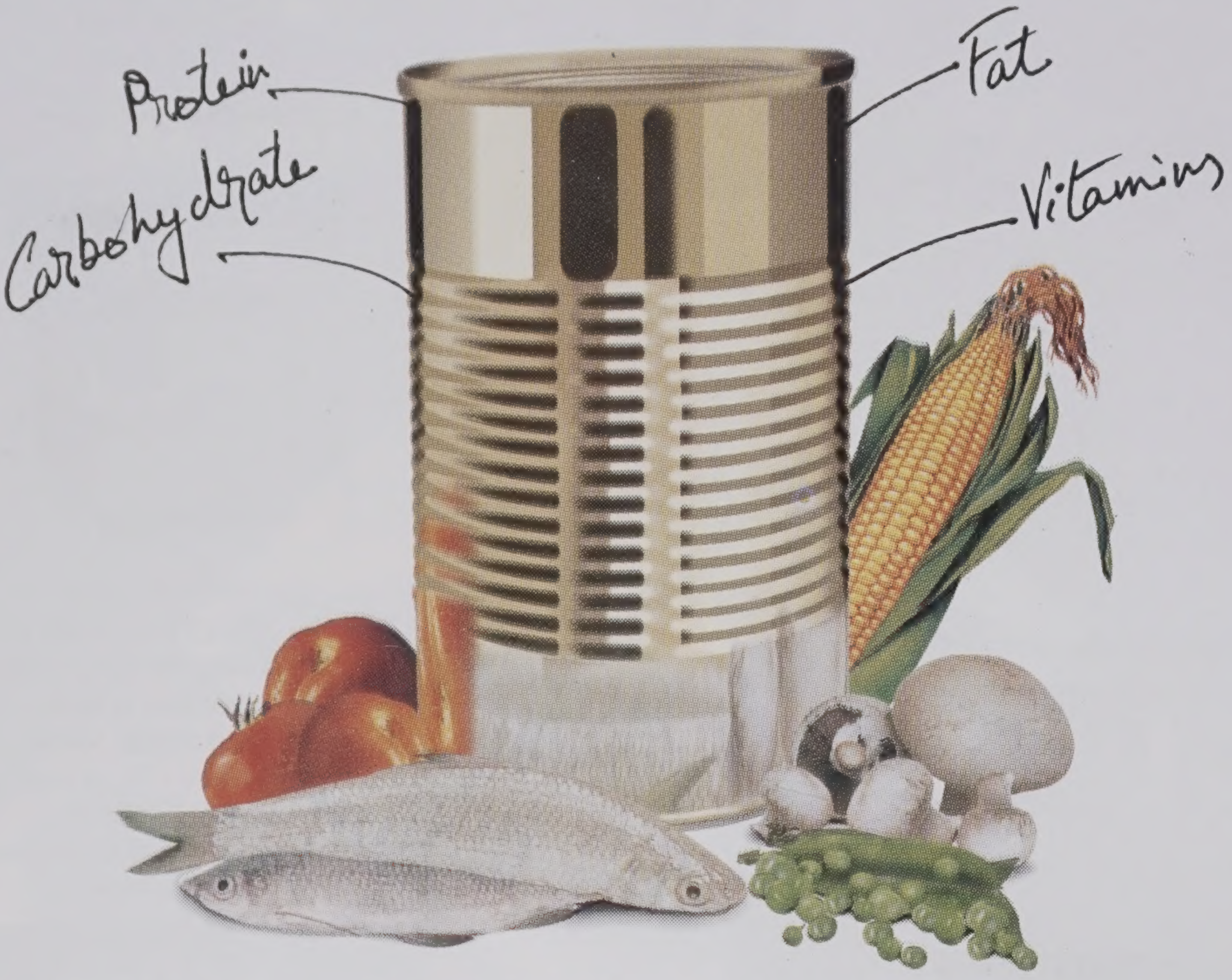
GOMA
ENGINEERING PVT. LTD.

Majiwada, Behind Universal Petrol Pump, Thane - 400 601,Mumbai (India).
Tel.: 91-22-534 64 36/534 08 75 • Fax: 91-22-533 36 34 / 32 • E-mail : goma@vsnl.com • Visit us at www.gomaengg.com

GOMA - A Company that evokes trust

BORN CATALYSTS/5-01

Think Nature. Think Tinplate.



All come best in tinplate packaging.

- ✔ Ultra violet ray & bacterial protection
- ✔ Aroma & flavour retention
- ✔ Eco friendly
- ✔ Longest shelf life
- ✔ Pilfer & tamper proof
- ✔ Excellent printability

No wonder tinplate is globally proven as the best packaging solution.

TATA
TINPLATE

Tata Tinplate is manufactured by The Tinplate Company of India Limited (TCIL) for Tata Steel and over 15% of its production is exported to discerning markets worldwide.

For all queries, please contact The Tinplate Company of India Limited, 4 Bankshall Street, Calcutta-700001, Ph: 2103963/4
Fax : 2204170 E-mail : cmm@tata-tinplate.com

visit us at www.tinplateindia.com

sketchadvertising@vsnl.com

britomatics
Water Technologies

Reverse Osmosis Water Purification System
For the Food and Beverage Industry

ENJOY PURE AND HEALTHY WATER

DRINKING. COOKING. COFFEE & TEA. PETS & PLANTS. HOMES. OFFICES. PHARMACEUTICAL APPLICATIONS.

FOOD PROCESSING. ICE MAKING. LABORATORIES. SCHOOLS. RESTUARANTS. HOTELS. COFFEE SHOPS

4-STAGE REVERSE OSMOSIS (RO) PROCESS WITH HIGH FLOW BOOSTER PUMP

STAGE 1: **5 micron polypropylene sediment pre-filter** to extract suspended materials such as sediments, insects, asbestos fiber, rust and particles down to 5 micron.

STAGE 2: **2 micron carbon block** cartridge to absorb chlorine and chlorine byproducts without release of carbon fines.

STAGE 3: **High rejection Thin Film Composite (TFC) RO membrane(s)** to reject a wide spectrum of impurities including TDS, Bacteria and viruses down to 0.0001 micron. The product water is stored in the storage tank, while the reject water is automatically flushed down the drain.

STAGE 4: **GAC Cartridge** is used to remove dissolved gases, bad taste and odor from product water. This is the final polishing stage prior to consumption.

britomatics
engrs. pvt. ltd.

C/9, Nand Dham
Industrial Estate,
Marol, Andheri (E),
Mumbai - 400 059.
Tel: 91-22-8500833 / 5834
Email:
britomatics@vsnl.com

KISAN

India's Largest Agri Show

18 - 21 OCT 2001
BANGALORE

www.kisan.com

For further details, contact
Deccan Exhibitions Pvt. Ltd.
Bangalore : Tel. : 080-3316330
Mobile : 98451 - 72383
Fax : 080 - 3316330
Email : bhavani@kisan.com
✉ 57/2, 11th Main Road, Malleshwaram,
Bangalore 560 003.

Pune :
Tel.: 020 - 5536001, 5537434
Fax: 020 - 5536301
Email : info@kisan.com
✉ 1170/17-B, Shivajinagar, Pune 411 005.

Approved by : India Trade Promotion Organisation

Make sure you are there

aay's.org/601

Add flavour to your Celebrations

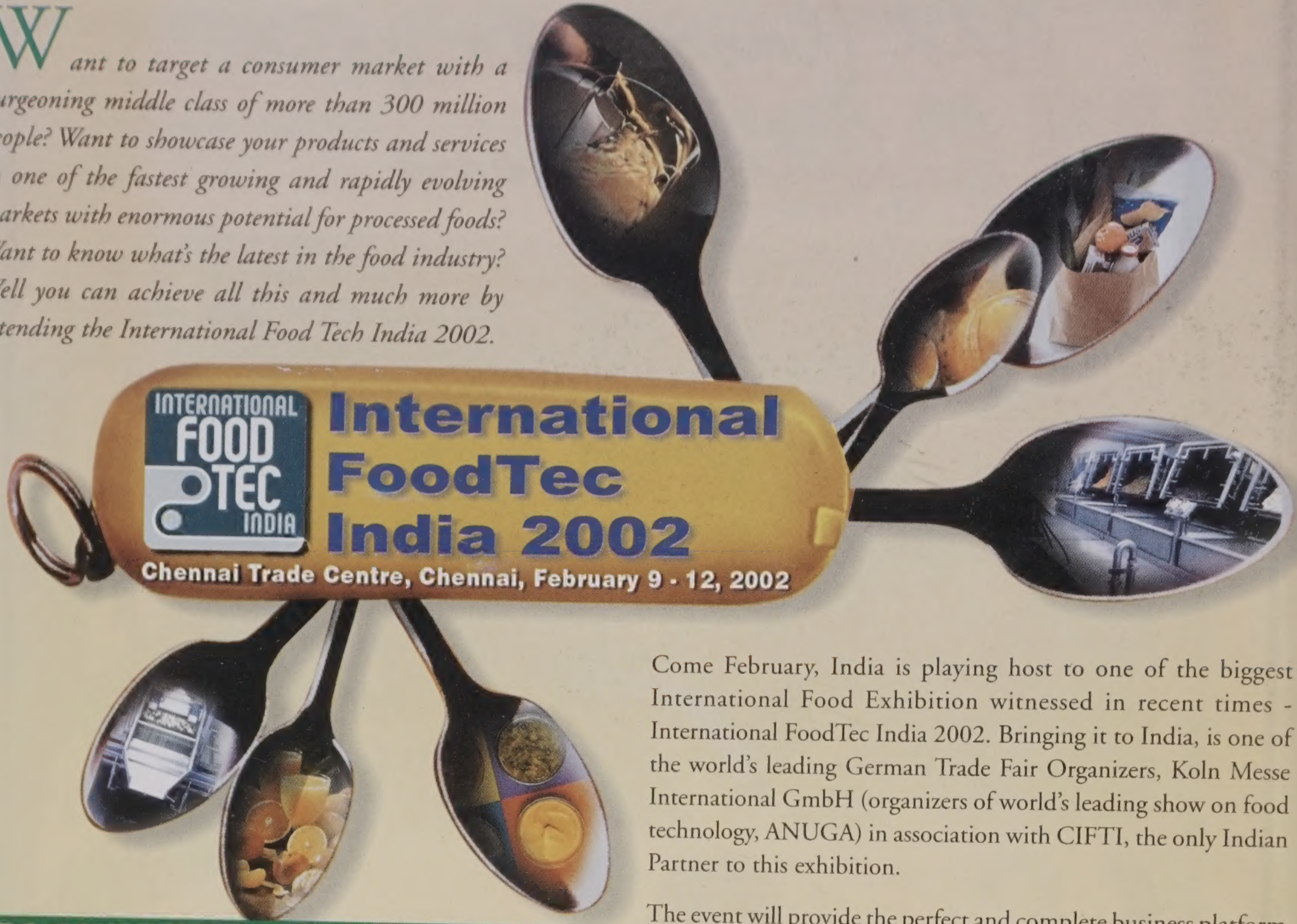
No party is complete without flavour. Especially if the goodness of goodies has not been made by Peacock Brand. The one that made a grand beginning in 1966, to become the leading flavour home group in North India. Our extensive warehouse capacity with the state-of-the art technology deliver only quality to the point of purchase. Be it a Confectionary, Pharmaceuticals, Process Food Industries, Beverage House etc. Use our flavour to make your party a celebration among celebrations

Please contact :
Manufacturers of PEACOCK BRAND Industrial Flavours, Fragrances & Essential Oils

GOGIA CHEMICAL INDUSTRIES PVT. LTD.
A-127, Okhla Industrial Area, Phase-II, New Delhi- 110020, Phone: 683 6007, 691 5194, 691 0329, 692 5664
Fax No.: (91) (11) 684 0763, Grams: ORANGE OILS, NEW DELHI, Email: gcipl@vsnl.com, Website.: www.gogia.com

SANTOSH AD

Want to target a consumer market with a burgeoning middle class of more than 300 million people? Want to showcase your products and services in one of the fastest growing and rapidly evolving markets with enormous potential for processed foods? Want to know what's the latest in the food industry? Well you can achieve all this and much more by attending the International Food Tech India 2002.



International FoodTec India 2002

Chennai Trade Centre, Chennai, February 9 - 12, 2002

Come February, India is playing host to one of the biggest International Food Exhibition witnessed in recent times - International FoodTec India 2002. Bringing it to India, is one of the world's leading German Trade Fair Organizers, Koln Messe International GmbH (organizers of world's leading show on food technology, ANUGA) in association with CIFTI, the only Indian Partner to this exhibition.

The event will provide the perfect and complete business platform for Indian and Foreign exhibitors to explore untapped opportunities in the ever expanding and globally competitive field of food processing by bringing them under one single roof.

CIFTI in its role of being the apex industry association catering to the needs of food industry providing institutional and technical support to its members will organize technical seminars on this occasion attended and addressed by experts, professionals, participating company representatives, both domestic & foreign and senior government officials.

So you get to witness not one but two mega events at the same place.

A chance you can't afford to miss. So be there!!

FOCUS AREAS

- PROCESSING TECHNOLOGY
- INGREDIENTS
- PACKAGING TECHNOLOGY
- LOGISTICS / PRODUCTION TRANSPORT
- MEASURING AND REGULATIONS SYSTEMS
- ANALYTICS
- HYGIENE
- REFRIGERATION TECHNOLOGY
- RESEARCH AND DEVELOPMENT
- STATE OF THE ART MACHINERY & SERVICES ETC.

Concurrent Exhibitions

- INDPACK 2002 International
- INDPRINT 2002 International.

Organised by

Köln Messe International

CIDEX

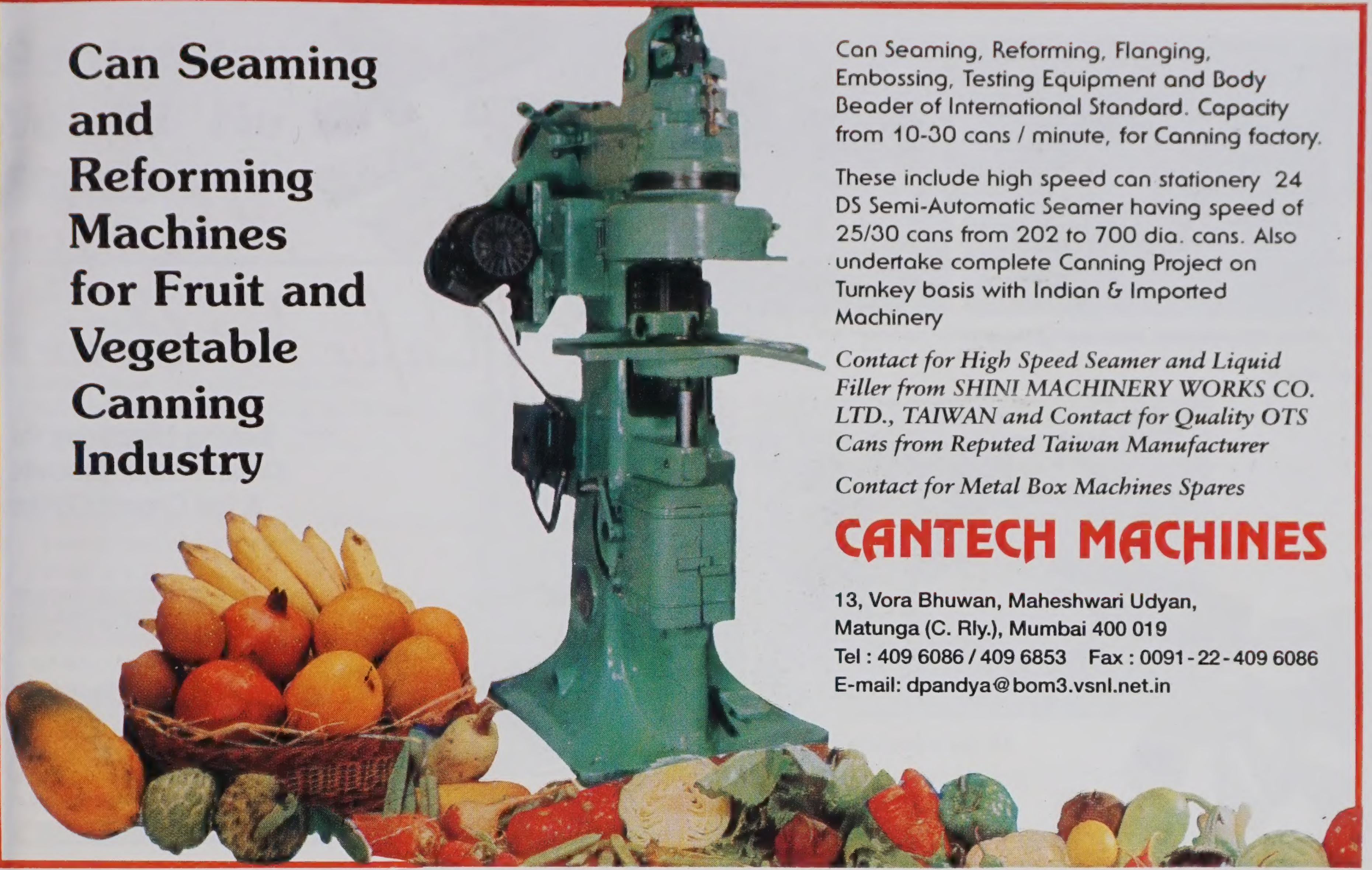
Indian Partner

CIFTI

Food Wing of FICCI

For any further details, please contact:
Ms Shweta Ahuja
Public Relations Officer, CIFTI

Confederation of Indian Food Trade and Industry
Federation House, Tansen Marg, New Delhi - 110001
Tel no.: 011 - 3736305, 3738760 - 70 (11 lines)
Fax: 011 - 3320714/3721504 • E-mail: ciftinfo@vsnl.net
Website: www.ciftinfo.com/foodtec.html



Can Seaming and Reforming Machines for Fruit and Vegetable Canning Industry

Can Seaming, Reforming, Flanging, Embossing, Testing Equipment and Body Beader of International Standard. Capacity from 10-30 cans / minute, for Canning factory.

These include high speed can stationery 24 DS Semi-Automatic Seamer having speed of 25/30 cans from 202 to 700 dia. cans. Also undertake complete Canning Project on Turnkey basis with Indian & Imported Machinery

Contact for High Speed Seamer and Liquid Filler from SHINI MACHINERY WORKS CO. LTD., TAIWAN and Contact for Quality OTS Cans from Reputed Taiwan Manufacturer

Contact for Metal Box Machines Spares

CANTECH MACHINES

13, Vora Bhuwan, Maheshwari Udyan,
Matunga (C. Rly.), Mumbai 400 019
Tel : 409 6086 / 409 6853 Fax : 0091-22-409 6086
E-mail: dpandya@bom3.vsnl.net.in

THIN WALLED PLASTIC CONTAINERS

We are the manufacturers of Transparent & Opaque White Injection moulded plastic containers ranging from 100ml to 2000ml. These containers are Airtight, Food Grade, Micro-Waveable (for re-heating), Deep Freezable, Stackable & available in various shapes. It has multipurpose utility & used in Industrial & Food packaging Industry.

DEALER
ENQUIRIES
SOLICITED

RAHEJA

K. RAHEJA MERCANTILE CORPORATION
108, New India Ind. Estate, Off Mahakali Caves Road, Andheri (E), Mumbai - 400 093
Tel.: 691 0759 / 691 0760 / 691 0761 / 839 4665 / 839 4666 • Fax: (91 - 22) 691 0758
Email: sales@krahejacontainers.com • Website : http://www.krahejacontainers.com

ZWA / ZW: Automatic Wafer baking Machine

WT: Manual baking tongs

ZA: Automated baking Machine

ZE: Semi-Automated baking Machine

Ideas for Wafer & Cones

Baking Machines for
Cream Wafer Biscuits
& Ice Cream Cones

R&D

R & D Engineers

A-41, IDA Kukatpally, Phase II, Road No.4,
Via I.E. Gandhi Nagar, Hyderabad - 500 037. INDIA
Phone : 3079121, 3079878 Fax : 0091-40-3078668
E-mail : randengg@hd1.vsnl.net.in
Web : www.rndwafers.com

Tel: 690 6487
Tel/Fax: 91-022-897 4357

SUPERIOR ENGINEERING WORKS

MANUFACTURERS OF SLAT CONVEYOR CHAIN & WHEEL

Fact: Unit No. 53-B, Shukla Compound
Near Murbali Talao, Shiv Vallabh Road
Dahisar (E), Mumbai 400 068
Email: superiorengg@rediffmail.com

September 2001
Vol. 28 No. 9
Mumbai

FOOD TECHNOLOGICAL RESEARCH INSTITUTE
REGIONAL CENTRE
MANGALORE
24/9/2001

BEVERAGE & FOOD WORLD

Published, Printed, Edited & Owned by :
Norman J. da Silva

Exec. Editor : Rosalie Fernandes
Editorial Assistants : Ashley da Silva, Zarine Singh, Jeannette da Silva

Advertising Executives :

MUMBAI
Hutoxi Randelia * Prem Tara * Pradeep Dubey * Bijan Bhattacharya * Henry Corriea

DELHI & U.P.
S. Natrajan, Sai Associates, 3 Gulati Business Center, C-43, Sector - 2, Noida - 201301(U.P.)
Tel: 011-91-4527381/7382/2173/8693/1558
Telefax: 011-91-4554636
Email: saiassociates@mail.com

GUJARAT
Ramesh Shah, M/s. Kantilal N. Shah, 204, Karishma Complex, Stadium Circle, C.G. Road, Ahmedabad 380 009. Tel: (079) 656 2380/646 3754, Fax: (079) 656 2224, Email: kns_98@yahoo.com, knsmedia@go.com
Harsh Enterprises, 2, New Laxmi Building, Plot No. 270, Ward 12-B, 1st Floor, Gandhidham, Kutch 370201, Gujarat. Tel: 02836-27321, 38251, Fax: 02836-30061

PUNE
Deccan Traders, Ganesh Park, Flat No.33 3rd Flr., S. No. 29-1A/2, Wadgaon Budruk, Pune 411041.
Tel : 4350162

TAMIL NADU
Amaricar Marketing International, 61, Montieth Lane, Egmore, Chennai - 600 008.
Tel : 8554689, 8553798, 8554230
Fax : 91-44-8553798, 8553555, 4346850

U.K.
Inter Link Trade, 32 Church Gate, Leicester, LEI 4AJ, England. Tel: 44(0)116-242-5676, Fax: 44(0)116-242-5600

Published by :
The Amalgamated Press, Narang House,
41, Ambalal Doshi Marg, Mumbai 400 001.
Tel : 2650268/2654184, Fax : 91-22-2641275
Email: dasilva@vsnl.com

Printed at :
Sevak Printers, 308, Shri Hanuman Industrial Estate, G.D. Ambekar Road, Wadala, Mumbai 400 031. Tel : 411 6484

Annual Subscription:
Rs. 450.00 Post-paid
Overseas : US $ 50.00 by Airmail

Editorial Note: The Editor will be glad to give due consideration to any authenticated material, photographs or drawings submitted for publication in BEVERAGE & FOOD WORLD but he does not assume any responsibility for their safe custody or return. The Editor does not necessarily share the views expressed by writers of signed articles or letters.

CONTENTS

Page No.

Nutritional Evaluation of Wheat Based Weaning Mixes
by S. Anand, S.R. Malhotra and M. Sood ... 11

Osmo-Vacuum Drying of Carrots: Effect of Salted Syrup on Drying Behaviour and Product Quality
by C.S. Chopra ... 15

Physico-chemical and Sensory Quality of Chicken-whey Soup Prepared from Spent Hen Heads and Whey
by Chidanandaiah and M.K. Sanyal ... 18

Cold Filtered Beer
by Alexander Modrok, Dr. Jurgen Schnell, Sartorius AG ... 21

Sensory Evaluation and Chemical Constituents of Red Gram (Cajanus Cajan L.) Varieties
by Anita Kochhar and Charanjit K. Hira ... 26

Studies on Preparation of Carbonated Beverages from Grapes
by A.S. Rokade, P.M. Kotecha and S.S. Kadam ... 28

Purification and Bleaching of Rice Bran Wax
by H.N. Mishra, R.K. Jayabhaye and Chitrangada Das ... 31

Studies on Processing of Barhal (Artocarpus Lakoocha Roxb) Fruits
by I.J. Singh, H.K. Singh and C.S. Chopra ... 35

Company News ... 43

Indian News & Notes ... 51

International News ... 54

Export Highlight ... 57

Book Reviews ... 58

Product Reviews ... 59

Trade Fairs & Conferences — *Indian* ... 81

FOOD TECH 2001 — *Feature* ... 82
List of Participants ... 83

Trade Fairs & Conferences — *International* ... 86

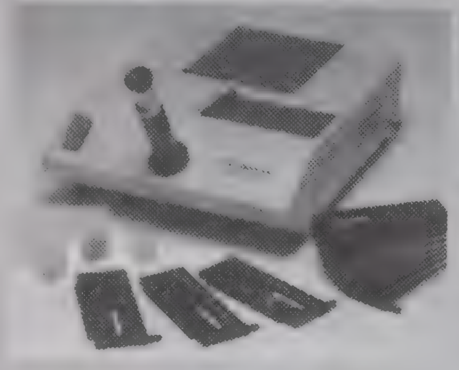
BUYER'S GUIDE ... 91

Lovibond

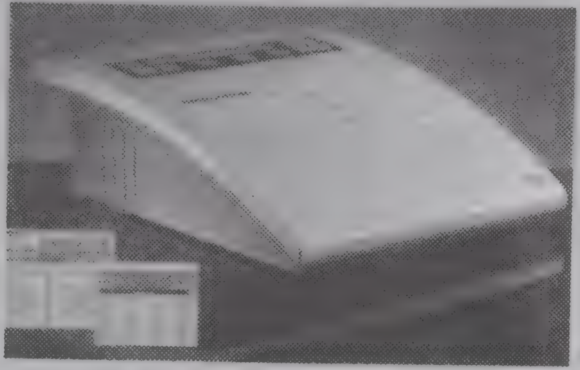
Lovibond Tintometer

The Lovibond colour scale is based on accurately calibrated series of coloured glass filters in each of the colours red, yellow and blue, going from very pale to dark. Using various combinations of these glassess, it is possible to match the colour of almost any sample and then to express this colour in terms of Lovibond Internationaly recognised units. The Lovibond colour scale is widely used for products which transmit light such as oils, liquid chemicals and syrup; it is also used for some light-reflecting products such as fats and pastes.

Also available from Lovibond Water Analysis, Photometers, Colourdiscs, Minikitts, Checkits.



Lovibond Tintometer
Model F



Lovibond PFX 190
Electronic Tintometer

Lovibond PFX 995 / 880
Automatic Tintometer

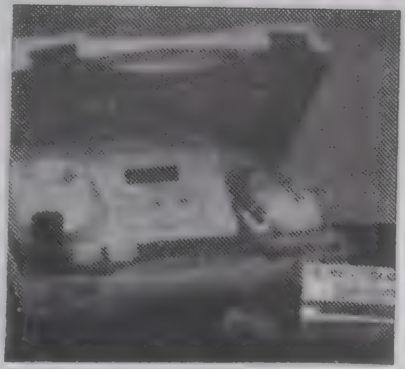
Colour Analysis, Manual, Electronic, Automatic

2000 Comparator
System

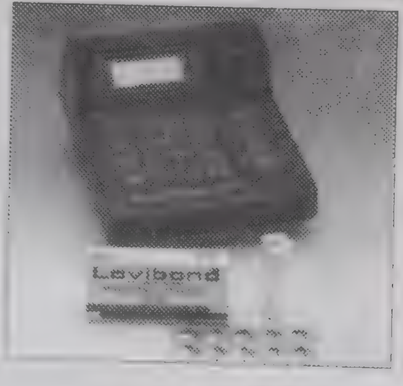
Colour Discs for
Colour & Water Analysis

Nessleriser

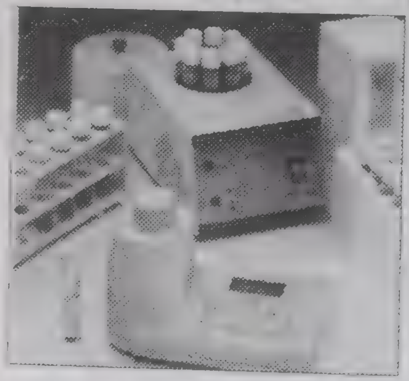
Water Analysis, Colour Discs, Photmeters, Minikts, Checkits



Turbidity Meter



Water Analysis
PC-22 Photometer



COD Measurment

BOD Measurment

Sunjay Technologies Pvt. Ltd.
A-32, Wadala Sri Ram Ind. Estate,
13, G. D. Ambekar Road, Wadala,
Mumbai - 400 031

Email : info@sunjaytechnologies.com
Home Page : www.sunjaytechnologies.com
Tel. : (022) 411 1497
Fax : (022) 411 1540

Authorised Sales & Service Agents for India :
Sunjay Technologies
a Scientific Corporation

Nutritional Evaluation of Wheat Based Weaning Mixes

by
S. Anand*, S.R. Malhotra** and M. Sood***

Abstract

Three different varieties/accessions of amaranth viz., Annapurna, EC-321561 and EC-321562 were evaluated for physico-chemical characteristics. The protein content was 10.75, 12.65 and 13.32 percent respectively. Annapurna variety of amaranth seeds was selected for the purpose of supplementation in different weaning mixes. Nine different weaning mixes were formulated using locally available cereals and pulses as wheat (Triticum aestivum), green gram (Vigna radiata), Bengal gram (Cicer arietinum), amaranth (Amaranthus sp.), skim milk powder and jaggery. Domestic processing techniques like roasting and popping were used to process cereals and pulses for development of weaning mixes. The developed weaning foods had 12.11 to 15.43g protein, 1.78 to 4.32g fat, 2.03 to 2.51g ash, 2.97 to 5.76g crude fibre and 326.98 to 355.84 Kcal. Nutrient composition of the developed weaning mixes was within the range prescribed by Indian Standard Institute and was found to be acceptable.

Introduction

Weaning is a transition period when the diet changes from complete breast feeding (upto 4 – 6 months) to when the child is able to eat normal family food (around one year). Such a shift involves not only a change in the texture but also the nutrient constituents in the diet of the infant. Weaning that begins too early involves the risk of infection, whereas that beginning too late leaves the infant with an inadequate intake of nutrients and, thus, is harmful for growth and development.

Cereals and pulses constitute an important source of dietary calories and protein for much of the world's population, especially in developing countries. Besides being good sources of protein and energy, serve as good sources of minerals in the human diet. Cereals are considered "unbalanced" in terms of amino acid composition generally lacking in sufficient amount of lysine needed for optimum health. Amaranth protein, however, has nearly twice the lysine content of wheat protein. It is, therefore a nutritional complement to conventional cereals (NAC, 1984). Amaranth seeds also serve as good sources of vitamins and minerals and contain a highly digestible starch (Singhal and Kulkarni, 1988).

An attempt has therefore been made to develop wheat based weaning mixes alongwith other locally available foods.

Materials and Methods

a) Procurement of material: Amaranth grains of three different varieties of amaranth "Annapurna", "EC-321561" and "EC-321562" were procured from the Department of Plant Physiology, HPKV, Palampur.

The other ingredients i.e. wheat flour, green gram, bengal gram and jaggery etc. were procured from the local market.

b) Preparation of cereals, pulses and amaranth seeds:

i) **Wheat Flour:** Flour was sieved and roasted in a cauldron (karahi) till light brown in colour.

ii) **Green gram:** Green gram was purchased from the local market. The grains were cleaned manually and was roasted and milled in the Willy mill.

iii) **Roasted Bengal gram:** Roasted bengal gram was purchased from local market and was ground to a fine powder.

iv) **Amaranth Seeds:** The grains were cleaned manually and dried in the sun. The popping of amaranth grain samples was achieved by heating amaranth grains on a preheated cauldron upto desired temperature i.e 220°C. When the treatment was completed, the product was removed, allowed to cool and then ground to a fine powder. The ground samples were stored in airtight containers for further use.

C) Preparation of Weaning Foods: The following foods were developed:

- Roasted wheat (45g), Roasted bengal gram (25g), Jaggery (30g).
- Roasted wheat (40g), Roasted green gram (20g), Skim milk powder (15g); Jaggery (25g).
- Roasted wheat (35g); Roasted green gram (20g); Amaranth (10g); Skim milk powder (10g); Jaggery (25g).
- Roasted wheat (35g); Roasted bengal gram (20g); Amaranth (10g); Skim milk powder (10g); Jaggery (25g).
- Roasted wheat (38g); Roasted green gram (25g); Amaranth (15g); Jaggery (25g).
- Roasted wheat (38g); Roasted bengal gram (22g), Amaranth (15g); Jaggery (25g).
- Roasted wheat (40g); Roasted green gram (25g), Amaranth (20g); Jaggery (15g).
- Roasted wheat (40g); Roasted bengal gram (25g); Amaranth (20g); Jaggery (15g).
- Roasted wheat (20g); Roasted bengal gram (20g); Amaranth (25g); Skim milk powder (20g), Jaggery (15g).

The above formulations were selected in such a way that each weaning food could provide 300 Kcal, 6 – 9g protein and 6 – 9mg iron per 100g per day and also amino acid make up similar to that of an egg.

According to Indian Standard Infant Milk Substitutes Specifications IS 14433 (Part I), 1997 the product should be white or white with a greenish tinge to light cream in colour reasonably free from lumps and should be uniform in appearance.

d) Chemical Analysis: The three raw and popped amaranth varieties were analysed for their physicochemical properties by the method of Narain ***et al.,*** (1978). The proximate composition of the prepared weaning mixes was determined by the method of AOAC (1990).

Results and Discussion

1) Physico-chemical Characteristics: Effect of popping on the physical characteristics of "Annapurna", "EC-321561" and "EC-321562" varieties of amaranth seeds is presented in Table 1. The 1000 kernel weight of EC-321561 (0.625g) and Annapurna (0.700g). However, on popping of seed there was a significant increase in 1000 kernel weight of the samples. There was a maximum increase in 1000

---

*M.Sc., Food Science and Nutrition, **Corresponding Author, *** Ph.D. Scholar, Food Science and Nutrition, Department of Food Science and Nutrition, College of Home Science HPKV, Palampur 176062 (H.P.)

kernel weight in case of "EC-321562". The values of treated and untreated samples were in close agreement with those reported by Bressani ***et al.,*** (1987).

Table 1. Physical characteristics of different Amaranth varieties/accessions

Varieties/accessions	1000-kernel weight (g)	Bulk density (g/ml)
Annapurna		
Raw	0.700	0.847
Popped	0.752	0.292
CD (5%)	0.016	0.015
EC-321561		
Raw	0.625	0.897
Popped	0.705	0.185
CD (5%)	0.013	0.013
EC-321562		
Raw	0.507	0.912
Popped	0.702	0.305
CD (5%)	0.023	0.022

The bulk density reported as mass per unit volume was also determined. It was found to be lower in "Annapurna" (0.912g/ml) indicating that the grains of "Annapurna" were lighter than those of "EC-321561" and "EC-321562". There was a significant reduction in the bulk densities upon popping. The bulk density of "EC-321562" decreased from 0.897g/ml observed for raw to 0.305g/ml after popping. A decline in the bulk densitites of popped samples of amaranth may be attributed to the volume expansion during popping. The increase in volume after popping amaranth was also reported by Erwin (1934) and Saunders and Beckar (1984) after popping.

2) Energy value of weaning mixes: Considering the relatively high energy needs of infants and in relation the limited capacity of a child's stomach to accomodate large quantities, it was necessary to increase the energy value of weaning foods, therefore, jaggery was added. Skim milk powder was also added in order to improve the protein content. Therefore, weaning foods using locally available cereals, pulses and jaggery were developed. The energy content of different weaning foods have been presented in Table 2. The energy value of mixes ranged from 327-356 Kcal/100g. The minimum energy contribution was found in the mix containing wheat, green gram, skim milk powder and jaggery. The maximum energy value was found in the mix prepared from wheat, bengal gram, amaranth and jaggery. Gahlawat and Sehgal (1994) reported the calorie content of weaning foods ranging from 348-364 Kcal/100g.

Table 2. Energy values of developed weaning mixes

Mix No.	Ingredients	Quantity (g)	Energy (Kcal)
1.	Wheat	45	339.02
	Bengal Gram	25	
	Jaggery	30	
2.	Wheat	40	326.98
	Green gram	20	
	Skim milk powder	15	
	Jaggery	25	
3.	Wheat	35	333.34
	Bengal gram	20	
	Amaranth	10	
	Skim milk powder	10	
	Jaggery	25	
4.	Wheat	35	333.98
	Green gram	20	
	Amaranth	10	
	Skim milk powder	10	
	Jaggery	25	
5.	Wheat	38	333.14
	Green gram	22	
	Amaranth	15	
	Jaggery	25	
6.	Wheat	38	343.66
	Bengal gram	22	
	Amaranth	15	
	Jaggery	25	
7.	Wheat	40	344.03
	Bengal gram	25	
	Amaranth	20	
	Jaggery	15	
8.	Wheat	40	355.84
	Bengal gram	25	
	Amaranth	20	
	Jaggery	15	
9.	Wheat	20	343.92
	Bengal gram	20	
	Amaranth	25	
	Skim milk powder	20	
	Jaggery	15	

3) Proximate composition: The proximate composition of weaning foods are presented in Table 3. The nutritional values of the weaning foods tested, ranged as follows:

JANAK DEHYDRATION PRIVATE LTD.

P. B. 58, Keri Bazar, Old Darbargadh, Mahuva 364 290 (Dist: Bhavnagar), Gujarat
Tel: (02844) 27763, 27764, 27765, Fax: (02844) 24265

Manufacturing Exporters of:

SUPERFINE QUALITY OF DEHYDRATED ONIONS, DEHYDRATED GARLIC AND OTHER DEHYDRATED VEGETABLES IN VARIOUS FORMS INCLUDING FREE-FLOWING POWDERS OF DEHYDRATED ONIONS & DEHYDRATED GARLIC.

We express our sincere thanks to our numerous customers across the country engaged in trade of Hotels, Restaurants, Fast Food Parlours as well as all leading trading houses manufacturing and dealing in Spices, various Masalas, Pickles and Tinned Foods for unanimous and overwhelming tremendous support to our products by their regular consumption.

HEALTH has always been a primary concern with JANAK and we take extra care on this front in our processing operations.

Our Onions and Garlic Powders add excellent flavours and aroma in your various dishes making them superbly delicious, appealing and appetizing.

Marketing Office: B/305 Sunder Dham, Ram Baugh Lane, Off S.V. Road, Near Poisar, Borivali (W), Mumbai - 400 092.
Tel: (Off.): (022) 8074436, (Resi.): (022) 8061113, Fax: (022) 8612735 Email: jkmehta@bom5.vsnl.net.in

Table 3. Proximate composition of weaning mixes

Products	Moisture	Crude Protein	Crude Fat	Total Ash	Crude Fibre	Carbohydrates
1.	13.33	12.11	2.69	2.26	2.97	66.57
2.	14.63	14.76	1.78	2.15	3.71	62.98
3.	13.90	13.36	3.17	2.33	4.41	62.83
4.	14.10	14.08	2.45	2.13	3.34	63.90
5.	12.60	13.17	2.82	2.51	5.12	63.77
6.	12.38	12.39	3.62	2.30	3.60	65.38
7.	10.03	14.71	3.39	2.44	5.76	63.67
8.	9.79	13.82	4.29	2.19	4.43	65.50
9.	13.34	15.43	4.32	2.03	4.07	60.83
CD(5%)	0.48	0.47	0.37	0.23	0.34	0.34

Values expressed as g/100g.

moisture, 9.79 – 14.63g; protein, 12.11 – 15.43g; fat, 1.78 – 4.32g, ash, 2.03 – 2.51g, crude fibre, 2.97 – 5.76g and carbohydrates, 60.83 – 66.57g per 100g. The maximum protein content (15.43g/100g) was observed in weaning mix consisting of wheat, bengal gram, amaranth, skim milk powder and jaggery. Almost similar values for protein (12.80 and 15.10g) was reported by Gopaldas ***et al.,*** (1982). Almost same values of protein (13g) was reported from weaning foods formulating by using malted ragi, malted horse gram and roasted groundnuts (Chandershekhar ***et al.,*** 1988). However, higher protein (19.4g) content was found in a weaning food (Soylac) prepared by blending soybean, wheat, rice flour, skimmed milk, minerals and water (Shulk ***et al.,*** 1986). Weaning mixes formulated from wheat, barley and green gram contained protein i.e. 13.88g – 14.18g as reported by Gahlawat and Sehgal (1994). As reported by Pawar ***et al.,*** (1994) a range of 3.3 to 3.7 percent fat in weaning foods was observed similar to that of present findings. The ash content varied from 2.03 to 2.51 percent. The crude fibre content ranged from 2.97 to 5.76 percent.

Conclusion

Since, there is a problem of malnutrition, at this vulnerable stage the weaning mixes developed in the present investigation if popularized would help a long way in combatting this problem, therefore, there is a need to develop weaning foods which may be of great help in combating the malnutrition problem.

References

AOAC. (1990). Official Methods of Analysis, Association of Official Analytical Chemists, 15th ed., Washington DC.

Brcssani, R., Gconzalcz, J.M., Zuniga, J., Brcuncr, M. and Elias, L.G. (1987). Yield selected chemical composition and nutritive value of 14 selections of amaranth grain representing four species. J.Sc. Fd. Agri 38:347–356.

Chandrasekhar, U., Bhooma, N. and Reddy, S. (1988). Evaluation of a malted weaning food based on low cost locally available foods. Ind. J. Nutr & Dietet 25:37–43.

Erwin, A.T. (1934). Alegria-A popping seed used in Mexico as substitute for popcorn, Iowa State College J. Sc 9:661.

Gahlawat, P. and Sehgal, S. (1994). In vitro starch and protein digestibility and iron availability in weaning foods as affected by processing methods. P1 Food Hum Nutr 45:165–173.

Gopaldas, T., Inamdar, F., Patel, J. (1982). Malted versus roasted young child mixes: Viscosity, storage and acceptability Trials. Ind J. Nutr & Dietet 19:327.

ISI (1997). Indian Standards Infant Milk subsititutes specification, New Delhi. Bureau of Indian StandardsIS: 14433 (1).

NAC. (1984). "Amaranth: Modern Prospects for an ancient crop" National Academy of sciences, Washington, DC.

Narain, M., Siripurapu, S.C.B., Jha, M. and Dwivedi, V.K. (1978). Physico-thermal properties of rice bran. J. Food Sc Technol 15:18

Pawar, V.D., Upadhye, V.P., Pawar, V.S. and Devi, R. 1994. Formulation and evaluation of a weaning food based on locally available foods. Journal of Food Science and Technology 31:221-224.

Saunders, R.M., and Beckar, R. (1984). Amaranthus: A potential food and feed resource. In: "Advances in Cereal Science Technology," Vol.-Vi ed. Pomeranz, American Association of Cereal Chemists, St. Paul, MN. 357p.

Shulk, I.A., Arshad, M., Aslam, M., Adil, R., Jatil, F. (1986). Preparation and nutritional evaluation of weaning foods based on wheat, rice and soybean (soylac). Pak J Sc Ind Res 29:151-154.)

Singhal, R.S. and Kulkarni, P.R. (1988). Composition of the seeds of some Amaranthus species. J. Sc. Food Agri 42:325-331.

IF YOUR FOOD PRODUCTS :-

- Have lower shelf life
- Higher Bacterial count
- Spoils Fasters
- To be processed in Bacterial free air
- To be packed in Sterilized Air
- Need Sterilized Process Water

USE OUR OZONE DISINFECTION SYSTEMS

CONSULTANTS AND MANUFACTURERS OF

♣ OZONE GENERATORS FOR STERILIZATION OF AIR, WATER & FOOD

- Mineral Water Plant
- Cooling Tower Water
- Cold Storage
- Food Disinfection Systems
- Swimming Pool Water
- Effluent & Waste Water
- Air Sterilization Systems
- Dairy Products Sterilization

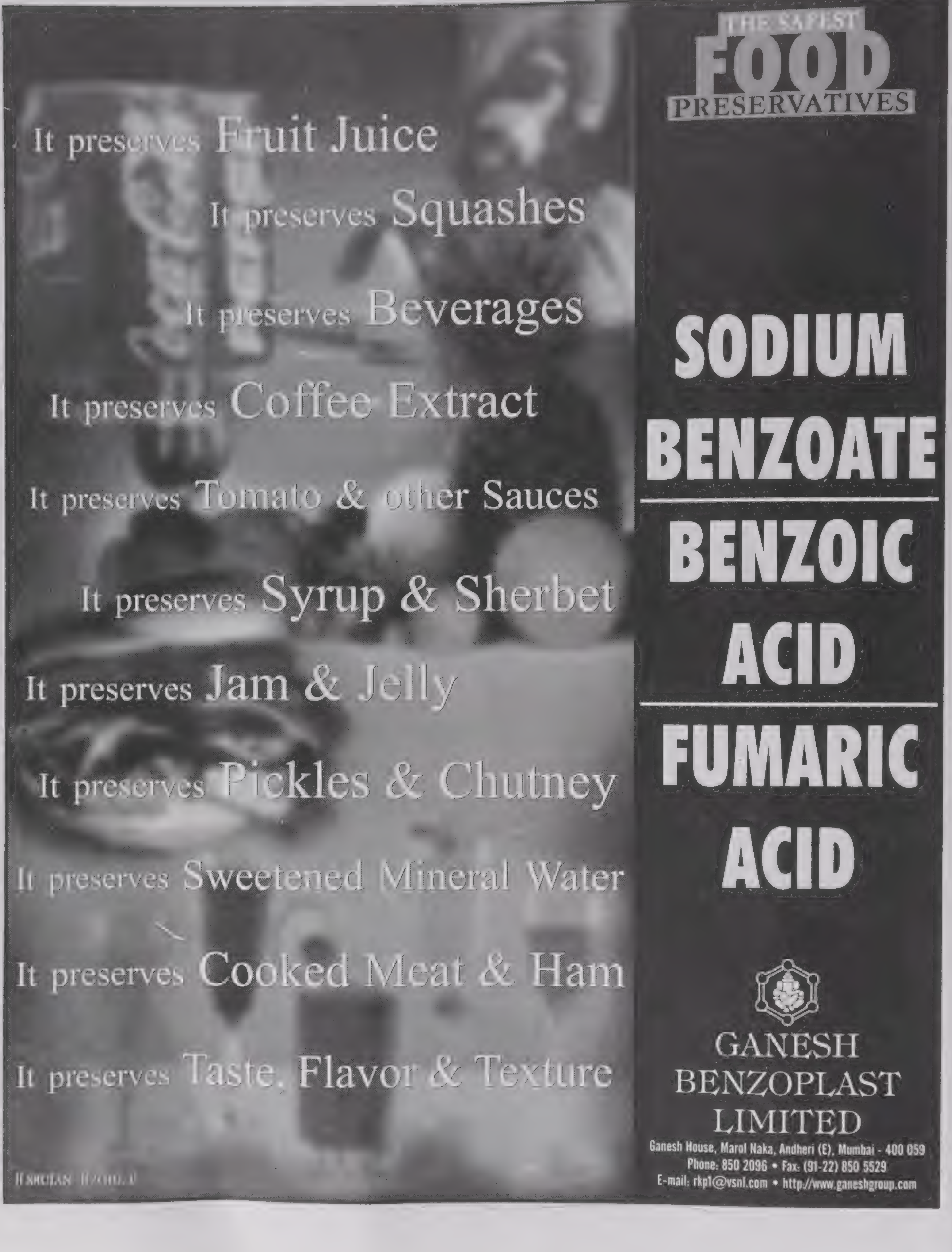
♣ WATER TREATMENT PLANTS ♣ MINERAL WATER PLANTS

CREATIVE CONCEPTS

F-60, Sector-8, Noida-201301 • Telefax: 011-91-4523339, 4552249, 45433337
• Mobile: 9810028966 • Email: concept@nda.vsnl.net.in, subodhbhatnagar@vsnl.com

When Replying To Advertisements, Please Mention

BEVERAGE & FOOD WORLD



THE SAFEST
FOOD
PRESERVATIVES

It preserves Fruit Juice

It preserves Squashes

It preserves Beverages

It preserves Coffee Extract

It preserves Tomato & other Sauces

It preserves Syrup & Sherbet

It preserves Jam & Jelly

It preserves Pickles & Chutney

It preserves Sweetened Mineral Water

It preserves Cooked Meat & Ham

It preserves Taste, Flavor & Texture

SODIUM BENZOATE

BENZOIC ACID

FUMARIC ACID

GANESH
BENZOPLAST
LIMITED
Ganesh House, Marol Naka, Andheri (E), Mumbai - 400 059
Phone: 850 2096 • Fax: (91-22) 850 5529
E-mail: rkp1@vsnl.com • http://www.ganeshgroup.com

Osmo-Vacuum Drying of Carrots: Effect of Salted Syrup on Drying Behaviour and Product Quality

by
C.S. Chopra*

Abstract

The preblanched or unblanched carrot pieces osmosed in sugar solution and in salted sugar solutions were vacuum dried to examine the effects of varying levels of salt (NaCl) on the osmo and vacuum drying characteristics and the product qualities. Salting of cane sugar solution (70° brix) at 0.5% level resulted in maximum weight loss of 46.41% in the unblanched pieces, however, in blanched samples, salt at all the three concentrations increased the weight loss slightly. Moisture loss exhibited the similar trend as noticed in the weight loss. Increasing level of salt enhanced the sucrose gain by the unblanched samples while it decreased slightly for the blanched ones. Salt irrespective of its level, lowered the vacuum drying rates. It also reduced the rehydration ratio, water content in the reconstituted product and the extent of nonenzymic browning. The osmosis of blanched carrot pieces in sugar solution containing 2.5% salt produced the best quality product.

Introduction

Blanching and sulphiting usually employed prior to dehydration or frozen storage of vegetables are in general indispensable operations for producing quality products. The quality of a finished product is also improved by the use of common salt i.e. NaCl. Its beneficial effects were noticed in dehydration of carrots (Speck ***et al.,*** 1977 and Grote and Fromme, 1984). Arya ***et al.,*** (1979) found that salt treatment decreased the rate of carotenoids destruction and the nonenzymic browning in the dried carrots. NaCl is an excellent osmotic agent for vegetables. (Adambounou ***et al.,*** 1983). It has been used in the osmo-drying of carrots (Flink, 1980; Lenart and Lewicki, 1987, 1988), apples (Lerici ***et al.,*** 1985) and potatoes (Zozulevich and Chumak, 1974; Islam and Flink, 1982; Lewicki ***et al.,*** 1984). In the present investigation unblanched and blanched carrot pieces were osmo-vacuum dried so as to study the effect of salting of syrup on the osmo and vacuum drying characteristics and the product qualities.

Materials and Methods

The crown and the root ends of the freshly harvested carrot roots following thorough washing and manual peeling were chopped off. The cylindrical shaped pieces of length and diameter 1.39 and 0.60 cm, respectively, were obtained by using dye and cork borer. Four lots of 100g carrot bars each were blanched in distiled water three times their weight at 70±2°C for 15 min. The blanched samples were immersed in 100ml. cane sugar solution (70° brix) alone and in such solutions containing 0.5, 1.5 and 2.5% NaCl (w/v) at 30±2°C for 8 hours. Four unblanched samples were also osmosed in similar fashion. Thereafter, the pieces were taken out, gently washed, blotted and dried in a vacuum oven maintained at 70±1°C. The separate lots of osmosed pieces were analyzed.

Analysis

Excess surface moisture of osmosed carrots were blotted and they were weighed immediately. Moisture content in the samples before and after osmosis and during subsequent drying was estimated by vacuum drying method as described by Ranganna (1986). Sucrose content in the fresh and the osmosed pieces was determined by Lane and Eynon's method (1923). Weight loss and water loss due to osmosis were expressed as % reduction in weight of pieces and amount of water removed (g) from 100 g fresh carrot, respectively. Sucrose gain by the pieces was expressed as the amount of sucrose gained (g) by 100g fresh carrots. The vacuum drying rate was defined as the amount of water removed (g) from 100g dry matter/min. The dried samples were analyzed for the nonenzymic browning, rehydration ratio and water content in rehydrated product by the methods as described by Ranganna (1986).

Sensory Evaluation

Dried carrot pieces following reconstitution by dipping them in three times their weight in distilled water for about 8 hours were evaluated organoleptically by a taste panel consisting of 8 members. The samples were rated on the Hedonic Rating Scale where, 1 and 9 represented disliked extremely and liked extremely, respectively (Larmond, 1982).

Statistical Analysis

The data of osmo-drying and product characteristics and the sensory evaluation were analyzed statistically by the technique of analysis of variance (ANOVA) as described by Raghuramulu ***et al.,*** (1983).

Results and Discussion

The blanching treatment (70°C for 15 min) of carrots bars (length 1.39 and dia. 0.60 cm) that produced the best osmovac dried product was used in the present study (Chopra and Verma, 1994; Chopra and Chauhan, 1999). The freshly harvested carrot roots contained 86.93±1.40% moisture and 3.27±0.75% sucrose on the fresh weight basis.

Osmo-drying Characteristics

Incorporation of NaCl at 0.5% level led to maximum weight loss of 46.41% in the unblanched carrot pieces and it exhibited declining trend with further rise in salt concentration (Table 1). The weight loss in blanched pieces was enhanced slightly with increasing the level of salt. Blanching irrespective of osmosis with or without salt reduced the weight loss considerably. The effect of sodium chloride on the weight loss was, however statistically insignificant. Water loss due to osmosis of either thermally treated or untreated pieces showed almost similar trends as observed in the weight loss and it was maximum (51.08g/100g fresh carrots) when unblanched carrots were osmosed in sugar containing 0.5% NaCl. Sucrose gain by the unblanched carrots was increased with the increasing levels of salt while reverse pattern was noticed in the blanched samples. The effect of salt and blanching on sucrose gain was significant but the influence of latter was more pronounced.

The greater driving force of the salted syrup was probably responsible for enhancing the weight and water losses in the unblanched samples (Lerici ***et al.,*** 1985) while, the opposite trend was noticed in these responses with rise in salt concentration, may be due to lowering of osmosis

---

**Deptt. of Food Science & Technology, N.D. University of Agriculture and Technology, Kumarganj, Faizabad 224229.*

pressure of the osmo-solution because of higher sucrose gain (Table 1). The changed permeability of the cell membrane on account of the thermal effect might be the cause of distinct behaviour of blanched carrots (Islam and Flink, 1982; Chopra and Chauhan, 2000).

Table 1. Effect of salting of osmo-solution on the osmo drying characteristics of carrot pieces

S.No.	Blanching conditions	Osmo-solution	Weight loss (%)	Water loss[a] (g)	Sucrose gain[a] (g)
1.	Unblanched	SS	44.70	49.82	3.92
2.		SS+0.5%CS	46.41	51.08	4.18
3.		SS+1.5%CS	42.07	48.21	5.75
4.		SS+2.5%CS	39.36	46.56	6.82
5.	Blanched	SS	29.06	41.51	12.98
6.		SS+0.5%CS	33.61	45.52	11.64
7.		SS+1.5%CS	33.89	45.31	11.23
8.		SS+2.5%CS	34.44	45.80	11.30
CD at 5% level		–	7.23	6.78	0.84

Average of values from three experiments
SS stands for cane sugar solution of 70°brix
CS stands for common salt
NS stands for non-significant
[a]Expressed as g/100g fresh carrots

Vacuum-drying characteristics

Table 2 indicates that moisture content during 6 hours of vacuum drying was lower in samples osmosed in salted-syrups than those osmosed in pure sugar syrups and it reduced with the rise in salt concentration in the syrup. At the end of drying, blanched samples retained more water than the unblanched ones which also enhanced slightly with increasing the level of NaCl. Salt did not influence the drying rate appreciably though some reduction in the rate of water evaporation from unblanched pieces was noticed with the rise in salt concentration. The greater the drying time of blanched pieces, their moisture retention was higher and the final moisture in the samples osmosed in salted syrup may be due to the compositional changes occurring owing to osmosis. Madarro ***et al.,*** (1982) and Mazza (1983) also reported that salt or sugar treatment of carrot pieces before air drying decreased the rate of moisture transport significantly.

Table 2. Effect of salting of syrup on vacuum-drying characteristics of osmosed carrot pieces

Blanching conditions	Osmo-solution	Moisture content (%db) at different intervals of time (min) during vacuum drying					
		0	120	240	360	480	600
Blanched	SS	272.86	93.84	40.98	15.77	5.86	–
		–	(1.49)	(0.44)	(0.21)	(0.08)	–
	SS+0.5%CS	269.41	87.90	35.74	13.58	6.38	–
		–	(1.51)	(0.43)	(0.18)	(0.06)	–
	SS+1.5%CS	255.87	80.44	30.91	14.14	6.53	–
		–	(1.46)	(0.41)	(0.14)	(0.06)	–
	SS+2.5%CS	250.39	74.79	29.07	13.29	6.73	–
		–	(1.46)	(0.38)	(0.13)	(0.05)	–
Unblanched	SS	277.12	83.65	39.92	22.82	12.68	6.32
		–	(1.20)	(0.36)	(0.14)	(0.08)	(0.05)
	SS+0.5%CS	222.37	79.31	38.50	20.21	12.87	6.59
		–	(1.19)	(0.34)	(0.15)	(0.06)	(0.05)
	SS+1.5%CS	220.62	75.22	35.59	19.98	12.64	6.62
		–	(1.21)	(0.33)	(0.13)	(0.06)	(0.05)
	SS+2.5%CS	216.76	73.94	34.26	17.23	10.94	7.03
		–	(1.19)	(0.33)	(0.14)	(0.05)	(0.03)

Average of values from duplicate experiments.
Figures in parenthesis indicate the drying rate (g of water removed/100g dry matter/min)

Product characteristics

Data given in Table 3 indicates that the increasing concentration of salt reduced the extent of nonenzymic browning, significantly. It also reduced the rehydration ratio and water content in the rehydrated product. The minimum extent of nonenzymic browning was observed in blanched samples when osmosed in sugar solution containing 2.5% NaCl. Arya ***et al.,*** (1979) and Mazza (1983) also reported that dipping of carrot pieces in salt solution prior to air drying decreased the nonenzymic browning and the rehydration ratio of the dried products.

Sensory evaluation

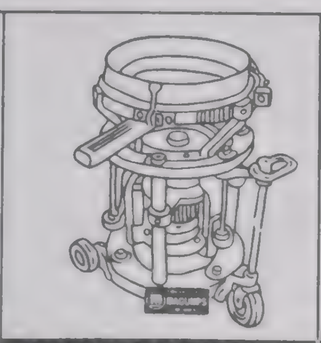
Table 4 shows that increasing level of NaCl improved the overall acceptability of the rehydrated product. Osmosis of blanched samples either in sugar solution alone or with added salt produced the carrots with higher ratings but addition of 2.5% NaCl was found to give the best quality

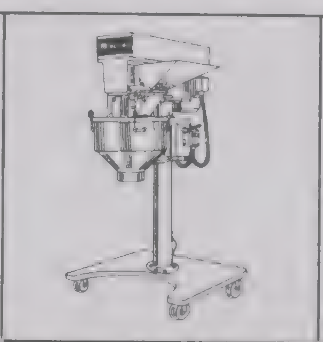
India's Leading Pharmaceutical Companies place their trust in MAGUMPS, Our range of most advanced machines covers practically every application [Semi automatic/Automatic machines for all sections] constant efforts are dedicated to upholding our motto : "Quality First"

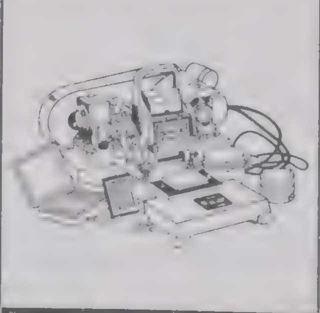
Exclusive machines of High Technology and Precision Quality

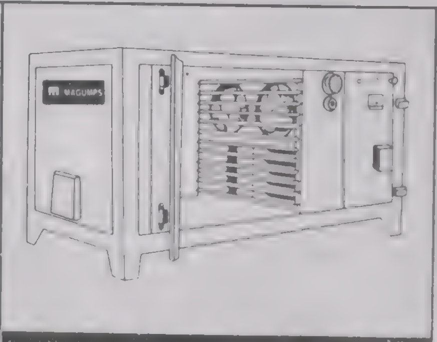
MAGUMPS

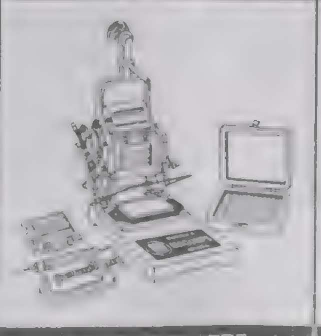
OFFICE : TRISANDHYA 'A', 97,
D. PHALKE RD., DADAR (E),
MUMBAI - 400 014.
TEL. NOS.: 411 3572 - 415 4474
FAX : 022 - 413 7648 / 413 8307
E-mail : magumps@bom5.vsnl.net.in

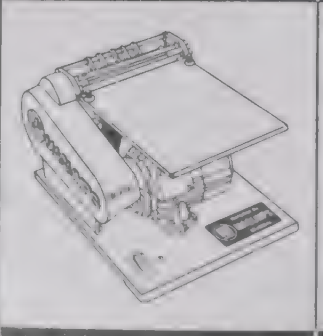

PORTABLE MECHANICAL SHIFTER*

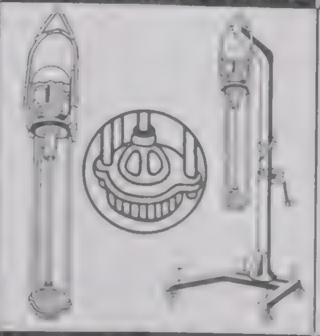

MULTI MILL


MOTORISED BATCH PRINTING MACHINE


DRYING OVEN


HAND OPERATED BATCH PRINTING MACHINE


LABEL GUMMING MACHINE


HOMOGINISER

SHRINK & WRAPPING TUNNER

Table 3. Effect of salting of syrup on product quality of osmo-vacuum dried carrot pieces

Blanching conditions	Osmo-solution	Non-enzymic browing (OD at - 420 nm)	Rehydration ratio	Water content (%wb) in Rehydrated carrot pieces
Unblanched	SS	0.1616	3.38	71.60
	SS+0.5%CS	0.1612	3.31	71.44
	SS+1.5%CS	0.1433	3.28	71.06
	SS+2.5%CS	0.1410	3.23	70.52
Blanched	SS	0.1390	2.89	67.31
	SS+0.5%CS	0.1017	2.85	66.92
	SS+1.5%CS	0.0818	2.82	66.51
	SS+2.5%CS	0.0632	2.79	66.08
CD at 5% level	–	0.0366	NS	NS

Average of values from three experiments

product. Statistical analysis revealed that the appearance, texture, and overall acceptability of the rehydrated product varied significantly due to the effect of blanching treatment.

Table 4. Effect of salting of syrup on the organoleptic score of rehydrated carrot pieces

Blanching conditions	Osmo-solution	Appearance	Odour	Taste	Texture	Overall Acceptability
Unblanched	SS	5.81	6.00	7.00	5.00	6.06
	SS+0.5%CS	6.00	6.13	7.50	5.13	6.50
	SS+1.5%CS	6.00	6.31	7.56	5.50	6.56
	SS+2.5%CS	6.44	6.38	7.50	5.50	6.56
Blanched	SS	7.31	7.56	7.56	7.25	7.50
	SS+0.5%CS	7.56	7.88	7.56	7.50	7.50
	SS+1.5%CS	7.99	7.88	7.56	7.56	7.75
	SS+2.5%CS	7.94	7.94	7.50	8.00	7.88
CD at 5% level	–	0.89	NS	NS	0.93	0.75

Average score of 8 panelists

References

1. *Adambounou, T.L., Castaigne, F. and Dillon, J.C. 1983. Abaissement de 1' activite de 1'eau legumes tropicus par deshydratation osmotique partielle. Science des Aliments. 3:551.*

2. *Arya, S.S., Natesan, V., Parihar, D.B. and Vijayaraghavan, P.K. 1979. Stability of carotenoids in dehydrated carrots. J. Food Technol. 14: 579-586.*

3. *Chopra, C.S. and Chauhan, G.S. 1999. Osmo-vacuum drying of carrots: Effect of preblanching on drying characteristics and product quality. Beverage and Food World. 26(6)31-32.*

4. *Chopra, C.S. and Verma, N.S. 1994. Osmo-vacuum drying of carrots: Effect of size of pieces on drying behaviour and product quality. Beverage and Food World. 21(2)7-8.*

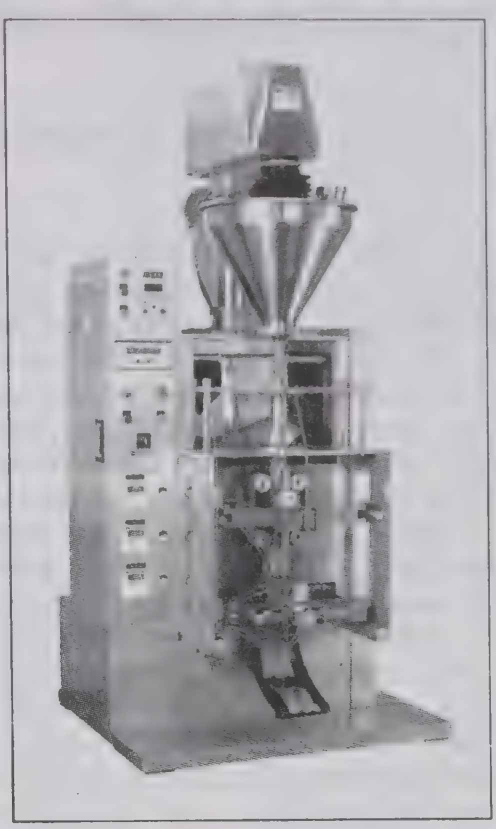
5. *Flink, J.M. 1980. Dehydrated carrots slices: Influence of osmotic concentration on drying behaviour and product quality, In Food Process Engg. Vol. I. Ed. Linko, P., Malkki, Y., Olkku, J. and Larinkari, J. Appld. Sci. Publish Ltd., London. 413-418.*

6. *Grote, M. and Fromme, G. 1984. Electron microscopic investigations of the cell structure in fresh and processed vegetables (carrots and green bean pods). Food Microstructure. 3, 55-64.*

7. *Islam, M.N., Flink, J.N. 1982. Dehydration of potato II. Osmotic concentration and its effects on air drying behaviour. J. Food Technol. 17, 387-403.*

8. *Lane, J.H. and Eynon, L. 1923. Determination of reducing sugars by means of Fehling's solution with methylene blue as internal indicator. J. Soc. Chem. Ind. 40, 30T.*

9. *Larmond, E. 1982. Laboratory Methods for Sensory Evaluation of Food, Communication Branch, Agricultrue, Ottawa, Canada.*



Vertical Form Fill Seal Machine

To pack
Tea
Sugar
Coffee
Spices
Rice
Pharmaceutical
Products, etc.

Wraptech Machines Pvt. Ltd.
Dharamchand Industrial Estate
Deonar Village Road, Mumbai - 400 088
Tel: 551 2138, 558 3596 • Fax: 91-22-557 0726
Email: abm@wrapmachines.com
Website: www.wrapmachines.com

10. *Lenart, A. and Lewicki, P.P. 1987. Osmotic concentration of carrot tissue followed by convection drying. In preconcentration and Drying of Food Materials Ed. Bruin, S. Conference, Eindhoven, Netherlands. 5-6 Nov. Elsevier Sci. Publish.*

11. *Lenart, A. and Lewicki, P.P. 1988. Energy consumption during osmotic and convective drying of plant tissue. Acta Alimentaria Polonica, 14, 65-72.*

12. *Leri, C.R. Pinnavaia, G., Dalla Rosa, M. and Bartolucci, L. 1985. Osmotic dehydration of fruit: Influence of osmotic agents on drying behaviour and product quality. J. Food Sci. 50, 1217-1219, 1226.*

13. *Lewicki, P.P., Lenart, A. and Pakula W. 1984. Influence of artificial semipermeable membrane on the process of osmotic dehydration of apples. Annals of Warsaw, Agriculture university, SGGW-AR, Food Tech. and Nutrition, No. 17-24.*

14. *Madarro, A., Pinagra, F., Carbonell, J.V. and Pena, J.L. 1982. Dehydration of fruits and vegetables with ambient air II. Experiences with salted carrot. Revista de Agroguimica Y Technologia de Alimentos, 22, 551-559.*

15. *Mazza, G. 1983. Dehydration of carrots. Effect of predrying treatments on moisture transport and product quality. J. Food Technol. 18, 113-123.*

16. *Raghuramulu, N., Nair, K.M., Kalyanasundaram, S. 1983. A Manual of Laboratory Techniques, National Institute of Nutrition, ICMR, P 359.*

17. *Ranganna, S. 1986. Handbook of Analysis and Quality Control for Fruit and Vegetable Products. Tata Mc Graw-Hill Publish. Co. Ltd. P. 1103.*

18. *Speck, P., Escher, F. and Solms, J. 1977. Effect of salt pretreatment on quality and storage stability of air dried carrots. Lebensmittel-Wissenchaft-und-Technologie 10, 308-313.*

19. *Zozulevich, B.V. and Chumak, Zh. Ya. 1974. Osmotic dehydration of vegetable tissue in salt solution. Konservnayai Ovoschesushil 'naya Promyshlennost No. 4, 42-43.*

Physico-chemical and Sensory Quality of Chicken-whey Soup Prepared from Spent Hen Heads and Whey

by
Chidanandaiah & M.K. Sanyal

Abstract

Chicken-whey soup was prepared by utilizing heads from slaughtered spent hens and paneer whey. After removing eyes, beaks and hairs, the heads were chopped and added to whey at 0, 10, 15 and 20% levels along with spice mix, condiments, thickening agent, common salt and monosodium glutamate, the mixture was cooked at 15 psi pressure (121°C) for 30 min and filtered to get the soup. Level of head highly significantly (P<0.01) affected the contents of fat, protein lactose, ash and total solids as well as pH, flavour, consistency and overall palatability and significantly (P<0.05) influenced meat flavour intensity (MFI) of chicken-whey soup. Addition of 20% chicken heads to whey is recommended for making a good quality chicken-whey soup as the product scored highest for flavour, consistency, MFI and overall palatability and contained highest concentrations of fat, protein, ash and total solids among all the products.

Introduction

During the last two decades, Indian poultry and dairy industry achieved commendable growth rate. The broiler and layer parent stock were 5.6 and 1.2 million respectively during 1994 (Imam, 1996) while the country became the world's top most milk producer with milk production touching 74 million tonnes during 1997-98 (Aron., 1998). These have led to availability of large quantities of byproducts like chicken head from poultry industry and whey from dairy industry. Volume of whey currently produced world over amounts to more than 80 million tonnes per year (Geoffrey **et al.,** 1996). Due to nonavailability of suitable technologies for gainful use of chicken heads and whey, these by products are mostly discarded causing wastage of valuable nutrients. Drainage of whey also poses danger to the ecosystem because of its high biological oxygen demand. The present paper reports on the quality of chicken-whey soup prepared by utilizing chicken heads and paneer whey along with other necessary ingredients. It is envisaged that utilization of chicken heads obtained from slaughtered birds and whey obtained during the production of paneer, chhana, casein and cheese, for making a palatable beverage would provide nutrition to people at low cost, reduce damage to environment and improve profitability of both the poultry and dairy industry.

Materials and Methods

Heads: Broiler spent hens of about 50 weeks of age obtained from the Central Avian Research Institute, Izatnagar were slaughtered by halal method in the abattoir of the Institute to get heads; eyes, beaks and hairs from heads were removed before use. Average content of moisture, protein, lipids and ash in chicken heads were 70.18±0.87, 15.04±0.38, 8.36±0.12 and 5.79±0.28% respectively.

Whey: Fresh whey obtained during the preparation of paneer from buffalo milk was procured from the dairy plant of the Institute. Average content of fat, protein, lactose and total solids in whey were 0.60±0.05, 0.57±0.12, 4.19±0.07 and 5.80±0.05% respectively while average pH and titratable acidity of whey were 5.50±0.04 and 0.19±0.01 (% lactic acid) respectively.

Spice mix: Spice mix was prepared using the ingredients mentioned in Table 1. The ingredients for spice mix were dried in a hot air oven at 80°C for 3h followed by grinding to a fine powder.

Table 1. Composition of spice mix

Ingredients	Quantity (%, by weight)
Coriander powder (Dhania)	15
Cumin seed (Zeera)	15
Red chilli (Lal Mirch)	20
Black pepper (kali mirch)	20
Cloves (Laung)	5
Turmeric powder (Haldi)	10
Cinnamon (Dalchini)	5
Ani seed (Soanf)	10

Condiment mixture: Condiment mixture was prepared by using fresh, peeled, sliced and ground onion, ginger and garlic in the ratio of 4:2:1 (by weight) to a fine paste with a small quantity of chilled water in a domestic grinder.

Method of preparation: Heads were cut into small pieces (approximately 2 cm length) using a sharp stainless steel knife and added separately to 3 kg of whey (already taken in a pressure cooker) at 10, 15 and 20% (w/w) levels and mixed properly. Spice mix, condiments, thickener, common salt and monosodium glutamate were added to the content in the cooker at 0.2, 1.75, 2.0, 1.0 and 0.1% (w/w) levels (of whey) respectively. The mixture was cooked at 15 psi (121°C) pressure for 30 min and allowed to cool followed by filtration through clean, fine muslin cloth to collect the chicken-whey soup. Based on preliminary trials conducted in the laboratory, required quantity of potable water was added to the starting whey to compensate for evaporation loss during cooking. Control soup was also prepared following the procedure mentioned above except that no head was added to whey.

Analytical technique: The chicken-whey soup was analyzed for protein and ash (AOAC, 1995), fat and titratable acidity (IS:SP:18, 1981), lactose and total solids (IS:1479, 1961) and pH (digital pH meter).

Sensory evaluation: The products were evaluated for sensory attributes such as appearance and colour, flavour, consistency, meat flavour intensity (MFI) as well as overall acceptability using a 8 point descriptive scale (Keeton, 1983) by a panel of judges consisting of scientists from the Institute. The judges received prior training about desirable and undesirable sensory properties of chicken-whey soup. In the descriptive scale, 8 denoted extremely desirable and 1 indicated extremely undesirable.

Statistical analysis: Data were analyzed following the procedure of Snedecor and Cochran (1967).

Results and discussion

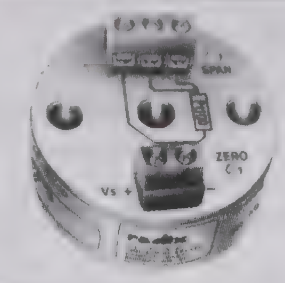
The average values for different physico-chemical and sensory parameters of chicken-whey soup are presented in

---

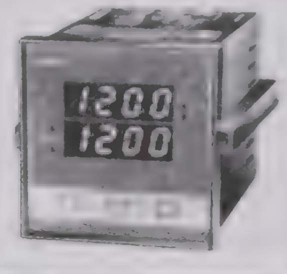
Division of Livestock Products Technology, Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh 243 122.

WE'RE IN *TOTAL* CONTROL!

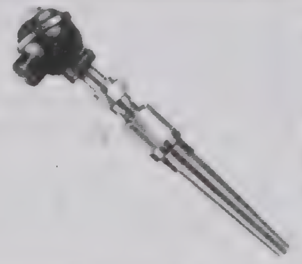
2-WIRE TRANSMITTERS

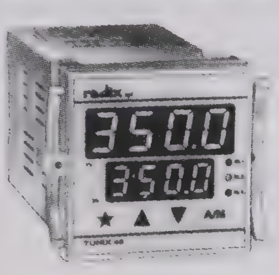

SPAN
ZERO
radix

PROGRAMMABLE ONOFF CONTROLLERS



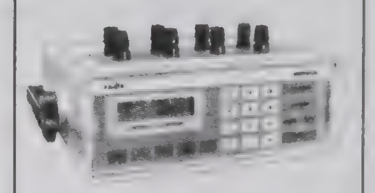
THERMOCOUPLES, RTDs

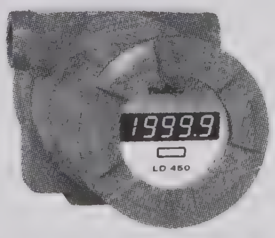



radix
350.0
350.0
A/M
TUNIX 48

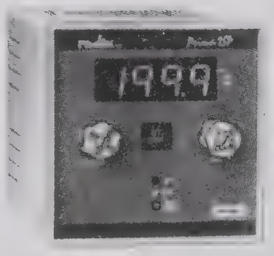
PID CONTROLLERS

UNIVERSAL CALIBRATOR

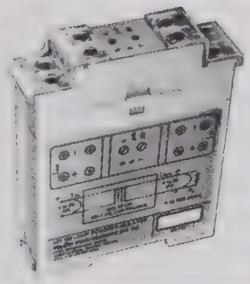



radix
1999.9
LD 450

FLAMEPROOF INSTRUMENTS

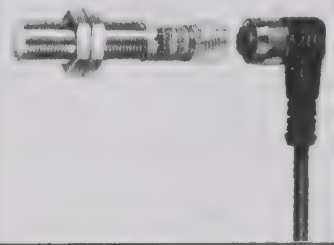


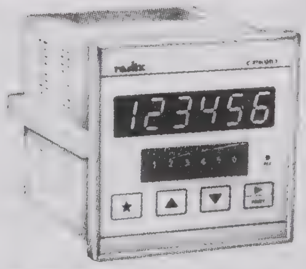
3 ½, 4 ½ DIGIT CONTROLLERS



LOOP POWERED ISOLATORS, DISPLAYS

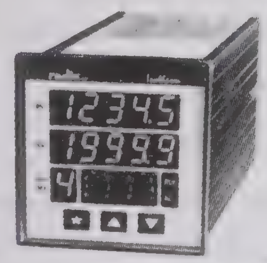
PROXIMITY SWITCHES



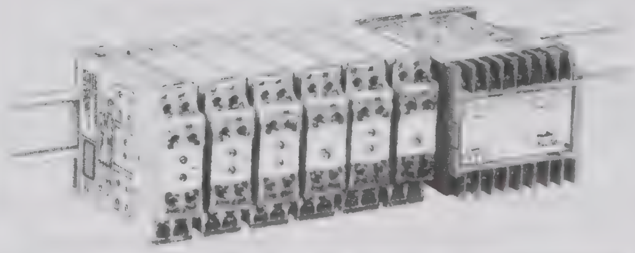

radix
123456

TIMERS, COUNTERS WITH MEMORY

SIGNAL CONDITIONERS


radix
12345
1999.9
4

MULTIZONE SCANNERS, CONTROLLERS



radix Radix Microsystems, D/201, Bonanza Industrial Estate, Kandivli (E), Mumbai - 400 101
Tel : 887 2440 / 887 2116 / 887 0517 **Fax :** + 91 22 887 4433 **Email :** sales@radix.cc Website **: www.radix.cc**

BANGALORE Tel : 5286211, Fax : 8517622
BARODA Telefax : 451749
CHENNAI Tel : 8293345, Fax : 8290341
HYDERABAD Tel : 3086843, Fax : 3070018
INDORE Tel : 550056
KOLKATA Tel : 2477280/4990, Fax : 2802708
NAGPUR Tel : 527931/32/33, Fax : 532939
NASHIK Tel : 311485, Fax : 575053
NEW DELHI Tel : 5786350 / 5762094, Fax : 5756068
PUNE Tel : 4482796, Fax : 4479759

Tables 2 and 3 respectively. Level of head significantly ($P<0.01$) affected the contents of fat, protein, lactose, ash and total solids as well as pH, flavour, consistency and overall palatability ($P<0.05$) influenced meat flavour intensity (MFI) of chicken-whey soup.

Table 2. Physico-chemical characteristics of chicken-whey soup made by using different levels of heads of broiler spent hens in whey (meant± S.F.)*

Parameters	Control	Levels of heads (%, by weight)		
		10	15	20
Fat	0.47 ± 0.04^{a}	0.80 ± 0.05^{b}	1.02 ± 0.05^{c}	1.19 ± 0.06^{d}
Protein	0.52 ± 0.04^{a}	0.72 ± 0.06^{b}	0.81 ± 0.05^{bc}	0.94 ± 0.05^{c}
Lactose	4.17 ± 0.04^{a}	$3.99\pm0.04b^{bc}$	3.90 ± 0.4^{cd}	3.81 ± 0.03^{d}
Ash	0.50 ± 0.03^{a}	0.61 ± 0.03^{b}	0.66 ± 0.04^{bc}	0.72 ± 0.02^{c}
Total solids	7.64 ± 0.10^{a}	8.18 ± 0.10^{b}	8.64 ± 0.06^{c}	8.93 ± 0.11^{d}
pH	5.46 ± 0.04^{a}	5.54 ± 0.04^{ab}	5.63 ± 0.04^{bc}	5.71 ± 0.04^{c}
Titratable acidity (% Lactic Acid)	0.18 ± 0.01^{a}	0.18 ± 0.01^{a}	0.17 ± 0.01^{a}	0.17 ± 0.01^{a}

*Means with different superscripts row-wise differ significantly ($P<0.05$)

Table 3. Sensory characteristics of chicken-whey soup made by using different levels of heads of broiler spent hens in whey (mean±SE)*

Parameters	Control	Levels of heads (%, by weight)		
		10	15	20
Appearance & colour	6.50 ± 0.13^{a}	6.77 ± 0.16^{b}	6.89 ± 0.12^{a}	6.67 ± 0.13^{a}
Flavour	5.41 ± 0.11^{a}	5.91 ± 0.20^{b}	6.19 ± 0.17^{b}	6.75 ± 0.14^{c}
Consistency	5.27 ± 0.17^{a}	5.50 ± 0.12^{ab}	5.81 ± 0.16^{bc}	6.11 ± 0.17^{c}
Meat flavour intensity	—	5.00 ± 0.15^{a}	5.23 ± 0.17^{ab}	5.43 ± 0.13^{b}
Overall palatability	5.41 ± 0.15^{a}	5.79 ± 0.14^{ab}	6.00 ± 0.18^{bc}	6.27 ± 0.16^{c}

*Means with different superscripts row-wise differ significantly ($P<0.05$)

Contents of fat, protein and ash in the soup made by utilizing spent hen heads at 0 (control), 10(I), 15(II) and 20(III) levels in whey ranged from 0.47 to 1.19, 0.52 to 0.94 and 0.50 to 0.72% respectively, being directly related to the level of heads. The contents of these constituents in the control differed significantly ($P<0.05$) from those in treated products while fat contents in the treated products differed significantly ($P<0.05$) from each other. However, protein and ash contents in I were significantly ($P<0.05$) lower than those in III. Level of heads was directly and inversely related to total solids and lactose content of the products respectively.

Control samples differed significantly ($P<0.05$) from treated products in respect of lactose and total solids content. Total solids content in the treated products also differed significantly ($P<0.05$) from each other. Lactose content of I was significantly ($P<0.05$) higher than that in III. Addition of spent hen heads which contain fat, protein, ash and total solids to whey for making chicken-whey soup might have resulted in higher concentration of fat, protein, ash and total solids but lower concentration of lactose in the treated products as compared to control. Level of heads was directly and inversely related to pH and titratable acidity of the product respectively. Titratable acidity of the products did not differ significantly from each other. But pH of control was significantly ($P<0.05$) lower than those of II and III.

The score for appearance and colour increased from 6.50 in control to 6.77 in I and 6.89 in II, thereafter the score decreased in III. Addition of heads at 20% level imparted a distinct blackish colour to chicken-whey soup, intensity of which was directly related to the levels of heads used. This might be the reason for lower score for appearance and colour obtained by III. Flavour of control sample differed significantly ($P<0.05$) from those of treated samples. Flavour of III was best and significantly ($P<0.05$) different from those of I and II. Lachhiramani (1979) reported that chicken soup prepared by using chicken shanks in water by pressure cooking method was rich in taste and flavour.

Score for consistency of control differed significantly ($P<0.05$) from those of II and III. MFI of I indicated a significant ($P<0.05$) difference from that of III but not from that of II. Addition of heads at 20% level proved optimum for getting highest MFI in the chicken-whey soup. The average scores for overall palatability obtained by control was significantly ($P<0.05$) lower than those of treated products. Sample I differed significantly ($P<0.05$) from III in respect of overall palatability. A level of 20% of heads proved to be optimum for making chicken-whey soup. Present results on soup made by utilizing spent hen heads in whey could not be compared satisfactory for lack of suitable reference in literature in this regard.

It is concluded that chicken heads and whey could be used to make a palatable and nutritious soup. Chicken-whey soup prepared by using 20% of spent hen heads obtained higher scores for flavour, consistency, MFI and overall palatability apart from being richer in fat, protein, ash and total solids contents as compared to control and chicken-whey soup made by using other levels of spent hen heads. Use of 20% of spent hen heads is recommended for making a good quality chicken-whey soup.

References

A.O.A.C. (1995). Official Methods of Analysis. 16th edn. (Ed.) Horwitz W. Association of Official Analytical Chemists, Washington, DC.

Anon, (1998). India leads in milk production. Times of India. Nov. 8, 12.

Geoffrey, S.W., John B., Adam, D., Copeland, Kirthi, D.J., David, D.A., Geoffrey, F.L., Chris, G., Poulr, G.A., Graeme, M.H., Ian, M.R., Johan, P.R. and Geoffrey, R.O. (1996). New opportunities from the isolation and utilization of whey proteins. J. Dairy Sci., 79:1454-59.

Imam, S. (1996). Indian poultry looks up: A survey. In : Indian Poultry Industry Year Book, 10th edn (Ed. Shakuntala P. Gupta).

IS:1579. (1961). Methods of test for dairy industry. Part II, Chemical analysis of milk. Bureau of Indian Standards, New Delhi.

IS:SP:18. (1981). Handbook of food analysis. Part IX. Dairy Products. Bureau of Indian Standards, New Delhi.

Keeton J.T. (1983). Effects of fat and NaCl/phosphate levels on the chemical and sensory properties of pork patties. J. Food Sci. 48:878-881.

Lachhiramani R.S. 1979. Utilisation of chicken shanks in chicken soup. Poultry Guide, 16:23-25.

Snedecor G.W. and Cochran W.G. (1967). Statistical Methods, 6th edn. Oxford and IBH Publishing Co., New Delhi.

When Replying To Advertisements
Please Mention

BEVERAGE & FOOD WORLD

Cold Filtered Beer

by
Alexander Modrok, Dr. Jurgen Schnell, Sartorius AG

Over 70 million hl of beer are "cold filtered" with membrane filters annually worldwide. Breweries in the Far East account for the largest portion. Activities of German breweries are comparatively modest. Can we learn from breweries in the far east? Using various examples, the following article emphasises not just equipment used for membrane filtration but also covers the benefits and advantages of this technology from a marketing standpoint.

In the German brewing sector, the technology of membrane filtration as a method for extending the shelf-life of beer has been discussed for more than 10 years. It has been technologically praised, at other times dismissed because of excessively high operating costs, and then again very often hailed as a future-oriented technology.

Fundamental considerations

A lot has happened in this area in recent years. Membrane filtration has proven itself in many countries, filtration costs have been drastically reduced as a result of development of new filter materials (membranes) and now have settled partly below the cost levels associated with flash pasteurisation. At the same time, the safety and reliability of membrane filtration has also been considerably improved again. Nowadays, fully automatic filtration systems are available, these can be used in 24 hours continuous operation. Thus, they are able to guarantee that the filling process runs without interruption. All in all, a technological basis has been created just as a brewer might want it. If we look at the German brewing industry, we see that the portion of beer which is membrane-filtered is comparatively small. Why was thermal treatment of beer given preference in the past?

Experience in other countries

Let us look first to the far East-to Japan. In no other country is the portion of unpasteurised beer higher than in the land of the rising sun. Pasteurised beer is a rarity in Japan. Why? well – Japanese are known for preferring fesh and unadulterated food, and they are accustomed to eating fresh food promptly. Japanese are not known for large stocking of food. Just like sushi and sashimi, the very epitome of fresh Japanese culinary culture, beer is also regarded as a fresh product.

Japanese often buy their beer from the cold shelf – where they expect to find unpasteurised beer. In short, Japanese beer drinkers are very well informed about the quality of their beers. They are knowledgeable about the gentle treatment which their favourite beer has gone through. Almost every can or bottle refers on the label or on an additional print field to the gentle treatment step of membrane filtration. Nobody is surprised when well-known imported beers are often sold for less than Japanese beers. The Japanese identify with their domestic quality product, even though they have to pay a bit more for it. The recent "Happoshu-wave" has not changed this (Happoshu: "beer-like" beverage with a malt portion under 66.7% and thus subject to considerable tax advantages).

Happoshu has been pitched at a retail price similar to the level of many well known imported beers, however with the afore-mentioned expected fresh character. In neighbouring China, breweries have also not ignored the technology of membrane filtration. A continuous rise in sales of imported beers and stepped-up activities of international breweries with production under licence or their own breweries in China have obliged Chinese breweries to take the initiative, with success.

Beer quality

Encouraged by the success of Japanese brewers, many Chinese have given consideration to the technology of "fresh beer" production (cold sterile filtration and filling). The primary objective was to achieve a significant quality improvement of selected beers. This has been one of the possibilities of successfully holding one's own in what has become meantime a highly competitive beer market while, at the same time, achieving higher prices. The Japanese have positioned themselves in price terms exactly between domestic beers and beers under licence or imported beers. Within a very short time, Chinese brewers have achieved considerable success by following this strategy.

Fig. 1. Elegance, high tech and cold sterile filling feature prominently in advertising by China brewers

As a result of extension and modernisation measures required, many brewers have faced or are facing a decision regarding new investments in the filling section. It was possible to react remarkably quickly and go for the most advanced filling technologies from e.g. Krones or KHS in the filling section. These were the first prerequisites for successful and microbiologically assured filling of unpasteurised or cold filtered beers. Zhujiang Pearl River Brewery in Guangzhou (Canton) was the first Chinese brewery in 1996 to decide in favour of cold sterile filtration in the bottling hall.

Weender Landstr, 94-108, 37075, Gottingen

As of 1997, Zhujiang has been producing a "cold filtered draft beer" with exceptionally great success (Fig. 1) The markedly improved quality of the beer has been received most favourably by consumers and led to increased sales and a significantly higher retail price. It is thus not surprising that the brewery had to make a decision very quickly to install two additional filtration and filling lines. A decision was made again in favour of the proven BSF filtration technology which was already in operation. In a nutshell, the brewery has managed to hold its place exceptionally well against international competition. Chinese beer drinkers have got the message why beers all of a sudden taste better – the beers are unpasteurised!

The current boom in membrane filtration equipment proves that successes of new beer brands are not limited to only one brewery. Half a dozen systems for cold sterile filling are being installed currently, and many more are on order. On the basis of current capacities, it may be anticipated that about 20% of Chinese beers will be sold as "fresh beer" in the short term. This percentage should receive another big push from the moves made by Japanese large breweries who also cold filter all their beer. In the light of these forecases, many German brewers should be looking with increasing interest to the Far East, as our domestic brewers have had to contend for some years with a stagnant or even contracting market. Isn't this just the situation which should stimulate the inventiveness of brewers? Apart from a few exceptions, the German brewing scene was rather conservative in terms of product innovations in the past. In this connection, the question may arise about what a German beer drinker, male or female, would associate with the term "unpasteurised" or "cold filtered".

Are beer drinkers in Germany sufficiently informed about this process step of pasteurisation? All who have drunk their beloved German beer while abroad know about taste differences arising from thermal treatment and long distribution routes. This is accepted short term but always in the expectation that one will soon get a "proper fresh beer".

Our brewing colleagues in the Far East had no other choice for decades but to use bottle pasteurisation. Certainly, new and more gentle pasteurisation methods gave rise to taste improvements but it was only with the advent of membrane filtration and improved filling technology that production of a real "draft beer" in the bottle became feasible. A beer which fulfilled the required minimum shelf-life, added definite advantages in taste as compared to other beers – and all this without thermal treatment.

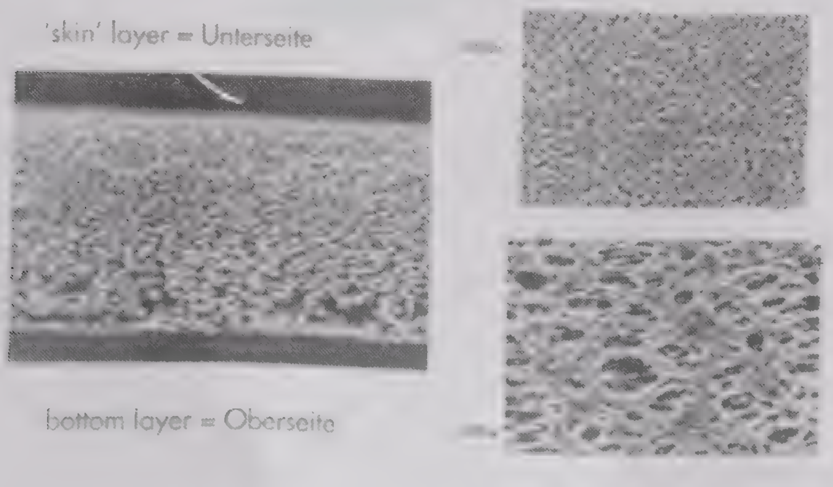


Fig. 2 Sartocool PS -Asymmetric microfilter membrance: polyether sulphone

Membrane technology

From this point, a more detailed description of cold sterile filtration (membrane filtration), the centrepiece of "fresh beer" production, will be given. Long before membrane filtration in breweries was first installed, this technology was used in the pharmaceutical industry. One was dealing as a rule there with much more expensive and sensitive products. Thermal treatment was not an option for these products because this would inactivate a large proportion of active substances. In the beverage industry, membrane filters were first used in wineries. As of the development of new special filter membranes, this technology came to establish itself more firmly in breweries. The first membrane filter candle exclusively designed for beer filtration came on the market under the name of Sartocool PS (Fig. 2). As a result of combining many individual new details and innovations, an optimal product for this application was available, after a development and test phase of 5 years.

The Sartocool PS membrane filter candle is characterised by the following details:

☐ It is a membrane filter candle developed specifically for beer filtration;
☐ modified polyether sulphone membrane filter material;
☐ high filtration throughput rates (maximum 10 hl per 30 inch filter element);
☐ pore size 0.45 μm;
☐ chemical regeneration possible at pH 1-14;

Applications

Brewers nowadays have the possibility of selecting different equipment systems from the TFS product line for trap, fine and sterile filtration, depending on the filtration job in hand. A number of automated sterile beer filter systems (BSF) are meantime in operation and have contributed to a definite improvement of beer quality through controlled operation of membrane filtration. It is to be expected that in the coming years, membrane filter systems will achieve greater market penetration.

Looking at the production section, two main areas of application arise for the filter systems; the first is in the filter cellar where fine filtration systems (BFF) are combined with kieselguhr filtration and possibly installed after PVPP. As a last process step ahead of the bright beer tank, the fine filtration system contributes to quality improvement or can be regarded as an additional polishing/safety filter. Subsequently, the beer can be filled directly and pasteurised or also membrane-filtered.

The much more interesting area of the production process is in the filling section in between bright beer tank and filler. Even nowadays, at least 60% of all filled beers (bottles or cans) is traditionally pasteurised. The quality of Asian beers in particular is affected to a greater extent due to the composition of the beer constituents or the modified brewing process as well as high pasteurisation units. This is one of the main reasons why cold filtered beer is increasingly regarded as market standard. In addition, this "fresh beer" constitutes an interesting profitable market segment for brewers.

In making a decision in favour of this process, the requirements of production – equipment, hygiene and process environment – have to be met. This involves certain investments in the first instance. Therefore, these filter systems are mainly considered when installing new production lines. Meantime, there are various recommendations for integrating these filter systems in a process line; these range from a stand-alone system all the way to complete integration in a process control system (Fig. 3).

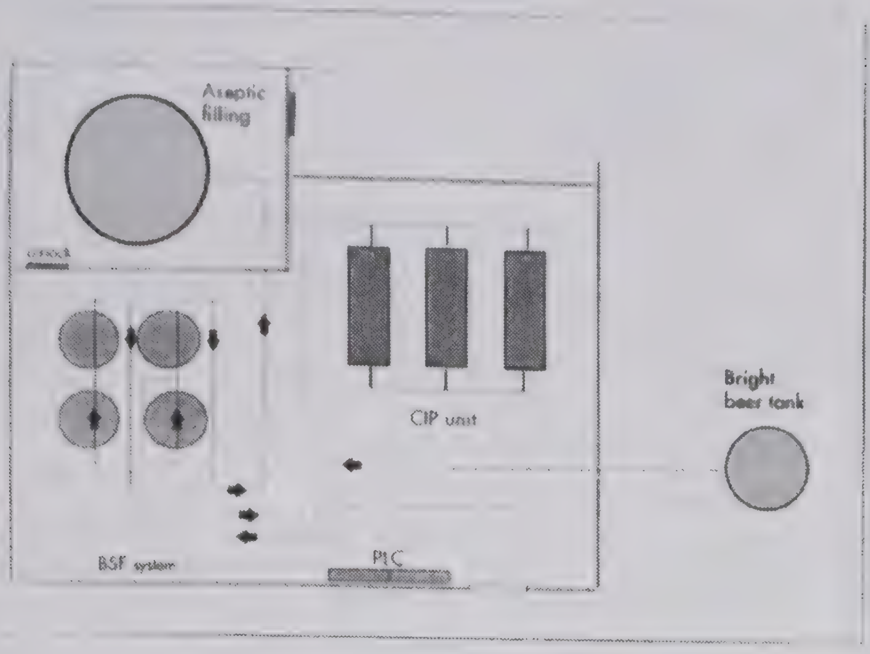


Fig. 3 Process diagram of Sartocool BSF system

System design

In implementation, a multiplicity of internal and external standards have to be complied within terms of design and hygiene. As well as that, process procedures and the integration of the system into the process line influence plant design:

- ❑ Material selection and surface characteristics;
- ❑ design and component integration;
- ❑ sizing and pipe runs;
- ❑ complete CIP compatibility and leakage safety.

In designing these customised filter systems, a 3-D-CAD program has proven to be of assistance in minimising design problems. The modular constructions on offer are based on standardised buildings blocks as shown e.g. in Fig. 4. The two sections – parallel filter line unit and utility unit – can be clearly seen. The utility unit supplies the filter lines with the various process flows (beer, CIP, process gases) and also contains the main control system for the plant. As a result of using parallel filter lines (duo-version), a production run and a CIP routine can be handled simultaneously on the plant. One line is thus always available for production, ensuring continuous 24 hour operation.

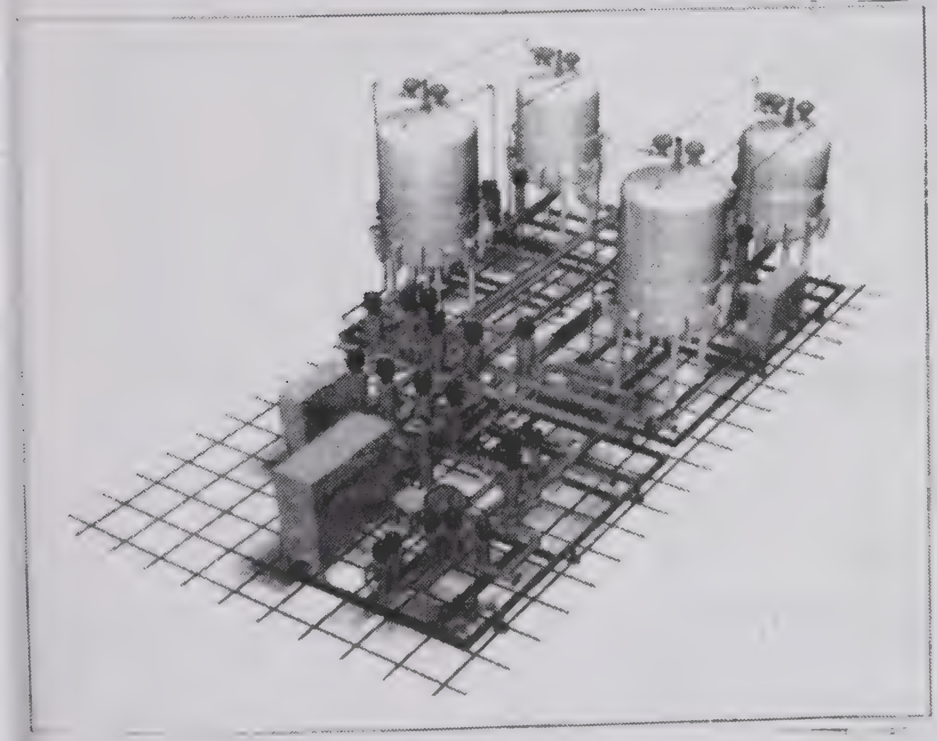


Fig. 4. 3-D-design view of a line installed at Zhujiang Pearl River Brewery

The filter systems are completely preassembled in the works and can thus be directly integrated into the on-site process line. Such basic systems, described in greater detail below, are available for both areas of application, filter cellar and filling.

BSF System for sterile filtration (filling)

The first automated BSF filter system for 260 hl/h was delivered to Zhujiang Pearl River Brewery in Guangzhou in September 1997. The plant was installed in conjuction with a sterile filler in a closed room with forced convection under practically "clean-room conditions". The brewery is meantime the largest producer of cold filtered beer in China, with an annual throughput of >1 million hl. At the end of 2000, two further lines for bottle and can filling were commissioned and the filling capacity was more than doubled.

More than 15 comparable systems for kegging, bottling and canning are meantime in operation, e.g. in the Zhejiang Chung Hua Brewery in Xiaoshan. The BSF filtration plant for bottling (Fig. 5) is installed ahead of a sterile filler. The capacity of the plant is 300 hl/h; it requires a floor space for installation of about 7m × 4m.

The plant itself is designed as a duo-line and has thus two parallel filter lines, each with a pre-and a final filter vessel, for holding 60 or 48 filter candles. The Sartofine pre-filter candles (0,7 µm) are designed for complete yeast removal and particle reduction and serve to take the load off the subsequent Sartocool PS membrane filter candles (0.45 µm). Thus, complete retention of all beer-spoilage microorganisms is assured.

The two filter systems are regenerated by an external CIP station, with the same cleaning media as are used for the filler, warm and cold water for rinsing, hot water for sterilisation and hot alkali as required.

The two main programs – production and CIP routine – are controlled by a Siemens PLC (S7-300). During the process run, all relevant data is collected and sent to the filler or the CIP station over a bus system. A test program integrated in the control routine checks the integrity of membrane filter candles in the final filter during the CIP routine.

Another BSF filtration plant is designed as a mono-system for canning and is thus designed as a single filter line. This consists of a 24-unit pre-filter vessel and two parallel 12 unit final filter vessels, which can be operated alternatively. The plant has a capacity of 100 hl/h for normal production runs of 10-16 h/d. These automatic filter systems have several advantages such as:

- ❑ High process flexibility arising from the parallel filter lines;
- ❑ automated CIP routine with integrity test;
- ❑ operational and process safety.

BFF system for fine filtration (filter cellar)

The filter system described below was designed as a duo-line with two parallel filter vessels and is installed in the Zhejiang Chung Hua Beer Brewery. A mono-version has been in operation for a number of months successfully in Beijing Yanjing Brewery.

This type of filter system is mainly used for trap or fine filtration in the filter cellar between kieselguhr, PVPP and the bright beer tank. Each plant (in Fig. 3) has a filtrate capacity of 600 – 900 hl/h, depending on the degree of separation of the filter candle used. Each filter vessel is fitted with 6 special jumbo large-area filter candles. As both vessels could run filtration in parallel, should the need

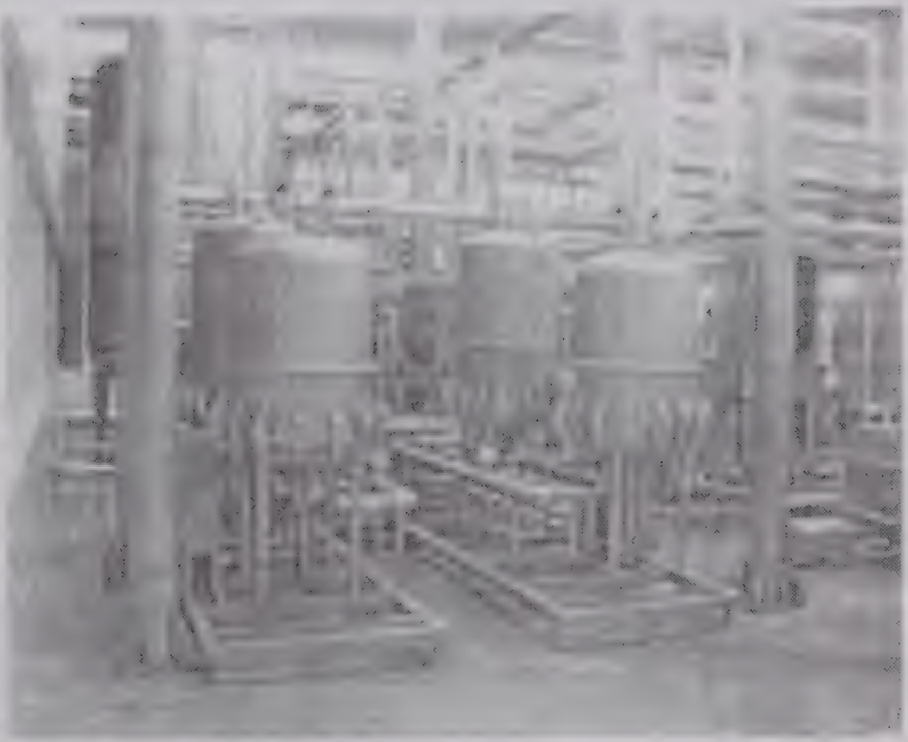


Fig.5 Sartocool BSF filter line installed at Zhejiang Chang Hua Beer Brewery

arise, this plant is the largest jumbo filter system ever been supplied to a brewery.

A special feature of these two plants is that they have their dedicated inline CIP unit for supplying hot water for sterilisation or hot alkali for cleaning. Hot and cold water is drawn directly from an external CIP station. Another special feature is that each filter candle has its own separate outlet from the filter vessel. It is thus possible to pre-rinse and back-wash each filter candle individually as required.

Process control and monitoring is done using a Siemens control system, combined with a PC visualisation software. Various plant process schemes are available for controlling the process, these activate suitable programs or allow parameters to be set or data collected.

These automatic filter systems have several advantages:

- ☐ High process flexibility arising from the parallel filter lines:
- ☐ automated CIP routine;
- ☐ operational and process safety;
- ☐ visualisation and documentation.

Summing up

Beer, possibly the "healthiest alcoholic beverage", is in no way affected negatively in taste terms by gentle processing through membrane filtration. As a result of eliminating thermal stressing, it is – as a side effect – assured that all important beer constituents are preserved. Does this present an opportunity for the brewer? Should he put greater emphasis on health, and on nature likewise, in advertising strategies? Can one envisage that advertising could include comments on all health promoting beer constituents such as e.g. enzymes, polyphenols, etc.?

Up to now, most international and national users of membrane filtration have emphasised the aspect of "fresh and unpasteurised". From an economic standpoint, membrane filtration is certainly becoming more interesting as a serious alternative to flash pasteurisation – especially in view of the continuously increasing energy prices.

NOW INTRODUCING

IMPORTED ADDITIVES AND EXCIPIENTS

FOR

PHARMACEUTICAL / FOOD / COSMETIC INDUSTRIES

AS UNDER:-

GUM XANTHAN

(MAKE: GERMAN & U.S.A.)

For Pharmaceutical / Food / Cosmetic Industries

PECTIN *(IMPORTED)*

For Jams and Jellies

GUM CARRAGENAN *(IMPORTED)*

Used in Food Industry for Jellies / Toothpastes / Gels

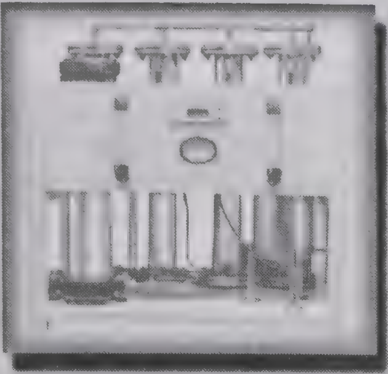
ENQUIRIES FOR IMPORTED ADDITIVES & EXCIPIENTS SOLICITED

Kindly Contact:

ALOK INTERNATIONAL

406, Goradia House, 100 / 104, Kazi Sayed Street, Mumbai 400 003
Tel: 342 6390 / 343 5433 / 343 6939 • Fax: 091-22-341 5668
Email: alokchem@bom2.vsnl.net.in • Website: www.gatewaytoindia.com\alok

WATER Purification Systems



Drinking Water / Mineral Water Mfg. System :
KOMAL Drinking water systems offers leading edge Reverse Osmosis technology and perfermance within a compact, economical unit. KOMAL'S three stage process utilizes a reverse osmosis membrane and pre-and-post filters. These high performance systems are dosigned for use in a wide variefy of applications. Production capacities range from 100 lit/hr to 5000 lit/hr. Convert Brakish/Salty Bore-Well water to water confirming to Drinking Water Standard free from Bacteria, Viruses, Suspended impurities and Organics.

Ultra Voilet Disinfectant:
High intensity Ultraviolet water Disinfection with 30000 microsiemens/cm2 Dosage. Komal builds the right UV Disinfection models for a wide range of flow rates for disinfecting procen water and variety of valuable options and performance features, available. It's a class by itself.

Ozone Generatar :
Ozone has emerged as the most efficient and ecologicailly sound oxident and biocide to treat both air and water. Komal can offers a wide selections of Ozone equipments with Corona Diacharge Technology. The elegant, simple designis engineered for minimum maintenance Ideal for Botlled Water, Process Water and Portable water application having different capacities to suit your requirements.

Home RO :
Your's singal water treatment system for the complete removal of the wide variety of contaminants that might be present in drinking water. It's a process similar to that used to produce bottled water, and is presently, the most effective technology known for the improvement of drinking water.
Now you don't have to accept anyhing less than sparkling clear, great tasting, water to drink and cook with.

MANUFACTURER AND EXPORTER :

Komal

Water-So Pure & Safe

KOMAL INDUSTRIES
108, Creative Ind. Center, 12 N.M. Joshi Marg,
Lower Parel (E), Mumbai - 400 011, India.
Tel.: 91-22- 309 1174 / 309 1090,
Fax: 91-22- 306 2711,
E-mail : kcc@giasbm01.vsnl.net.in

Sensory Evaluation and Chemical Constituents of Red Gram (Cajanus Cajan L.) Varieties

by

Anita Kochhar* and Charanjit K. Hira

Abstract

Sensory evaluation and chemical composition of new red gram variety AF-33 was studied as compared to reference variety T-21, AL-15 and local sample. Sensory evaluation did not show significant differences among four samples. The ranges of values were protein 22.18 – 24.37%, phenols 387 – 480 mg %, phytinP 94 – 196 mg %, total P 285 – 307 mg %, calcium 65.5 – 74.4 mg %, iron 5.34 – 5.86 mg %, ionisable iron 1.43 – 1.87 mg %, copper 1.17 – 1.36 mg %, manganese 1.50 – 1.79 mg % and zinc 1.98 – 2.06 mg %. Variety Al-33 was found comparable to reference variety T-21.

Legumes form an important source of proteins and other dietary constituents in Indian diets. Nutritional quality of legumes is of great importance to breeders, nutritionists and consumers especially at a stage of releasing new varieties as literature reports indicate wide varietal variations in chemical composition of food stuffs[1]. Red gram also known as pigeon pea is one of the important pulse crops of India and consumed widely in southern and eastern parts of India. Its cultivation has now spread to all parts of the country and new high yielding varieties are being selected and released for cultivation. In present investigation sensory evaluation and nutrient composition of new red gram variety AF-33 was compared with the already existing standard varieties (Al-15 and T-21) and local sample from the market.

Three red gram varieties namely AL-15, T-21 and AF-33 were obtained from the department of Plant Breeding of Punjab Agricultural University, Ludhiana and one dehusked sample was purchased from local market. The three varieties obtained as grains were got dehusked from the local market. For sensory evaluation 50 g of each pulse was pressure cooked for 15 minutes using standard methodology. Twelve semi-trained panelists from the departmental faculty evaluated the cooked pulses in triplicate for their appearance, taste, texture and overall acceptability using a 7 point scale. Mean scores were calculated for each of the parameters and analysis of variance was done to find the statistical differences.

For chemical analysis cleaned and dehusked samples were finely ground and passed through 40 mesh sieve and stored in airtight containers. The methods described by A.O.A.C[2]. were used to estimate moisture, crude protein, calcium, phosphorus and total phenols. Trace elements viz. iron, copper, manganese and zinc were estimated using Atomic Absorption Spectrometer after triple acid digestion[3]. Phytate phosphorus was estimated using the method of McCance and Widdowson[4] as modified by Snook[5]. The in vitro method of Narasing Rao and Prabhavati[6] was followed to assess available iron. All samples were analysed in triplicate and analysis of variance carried out to test statistical differences among varieties.

The data on sensory evaluation of red gram varieties is presented in Table 1. The results revealed that all sensory characters ranged between mildly favourable to favourable scores. Statistical analysis of sensory characters indicated that all the three red gram varieties did not differ significantly among themselves or from the local samples indicating thereby that these varieties were as acceptable as local variety. Thus higher yields of these varieties is a beneficial factor from consumer point of view.

Table 1. Sensory Evaluation of Various Red Gram Varieties

Characters	AL-15	T-21	AF-33	Local	F-Ratio
Appearance	6.05 ±0.53	5.88 ±0.58	5.83 ±0.51	5.77 ±0.42	1.00^{NS}
Texture	5.83 ±0.38	5.88 ±0.47	5.50 ±0.51	5.77 ±0.42	2.65^{NS}
Taste & Flavour	5.72 ±0.46	5.71 ±0.42	5.61 ±0.50	5.77 ±0.42	0.55^{NS}
Chewing	5.88 ±0.47	5.72 ±0.46	5.72 ±0.46	5.72 ±0.46	0.57^{NS}
Overall acceptability	5.77 ±0.42	5.77 ±0.42	5.61 ±0.55	5.66 ±0.48	0.57^{NS}

The values are mean ± SD

Key to score: Strongly favourable -7, Favourable -6, mildly favourable -5, undecided -4, mildly unfavourable -3, unfavourable -2, strongly unfavourable -1.

NS - non-significant

Chemical constituents of the tested red gram are presented in Table 2. The results indicated highest protein content of AF-33 (24.37 %) and lowest for local sample (22.18%) but varietal differences were non-significant. The results are in agreement with the reports of Garg and Bhattacharya[7] where protein content of 12 pigeon pea strains was found to range between 20 – 24.43%. The values are, however, higher than those reported by Kumar ***et al.***[5], who reported a range of 18.2 – 19.8% protein. To some extent these differences could be due to the fact that present data is expressed on moisture free basis showing higher values. Total phenol content of all the three tested varieties was significantly higher (P<0.01) than the local sample. Phytin P was maximum in AF-33 variety (196 mg %) and minimum in local sample (94 mg %) and varietal differences were significant (P<0.01). However, total phosphorus content was not significantly different among varieties and was within the range of 0.21 to 0.30 % as reported by Sood and Dhindsa. Slightly higher values of total phosphorus ranging between 0.29 to 0.44 % have been reported by Deosthale and Rao[9]. Calcium content of T-21 variety (74.4 mg %) was highest while that of local variety (65.5 mg %) was lowest with non-significant differences. Calcium content of red gram observed in present study was higher than the reports of Sood and Dhindsa[1] (17.76 – 44.40 mg %) but lower than those of Kumar ***et.al.***[8], (115-122 mg %) and was within the range reported by Deosthale and Rao[10] (49 – 102 mg %). Total iron content was maximum in AL-15 (5.86 mg % and minimum in local sample (5.34 mg %) with significant (P < 0.01) varietal differences. These values were within the range reported by Sood and Dhindsa[1], and Deosthale and Roa[9] but higher than the values reported by Kumar ***et al.***[8]. Available iron content of T-21 was highest while that of AL-15 lowest and varietal differences were significant (P<0.05). Copper content among varieties ranged from 1.17 – 1.36 mg % respectively for local and T-21 varieties with non-significant differences. Similarly manganese and zinc content varied from 1.50 – 1.79 mg % and

---

AssH Ext Specialist (F&N), Department of H Sc Extention Education, College of Home Science, Punjab Agricultural University, Ludhiana 141004.

from 1.98 – 2.14 mg %, respectively with non-significant differences among varieties. Soil type, agronomic practices and environmental factors would account for differences in chemical constituents of grains grown at different places.

Table 2. Some Chemical Consituents of Red Gram Varieties Dry WT Basis, mg/100 g except for Protein as g/100 g.

Characters	AL-15	T-21	AF-33	Local	F-Ratio
Protein	23.75	23.43	24.37	22.18	3.10
Phenols	480	427	456	387	13.19**
Phytin P	112	121	196	94	24.13**
Total P	307	300	292	285	4.06
Calcium	67.70	74.40	72.20	65.50	2.65
Iron	5.86	5.62	5.78	5.34	10.00**
Ionisable Iron	1.43	1.87	1.58	1.45	5.2*
Copper	1.29	1.36	1.31	1.17	2.5
Manganese	1.79	1.61	1.50	1.68	0.3
Zinc	2.06	1.98	2.14	2.05	0.7

The values are the mean of three replicates

* – Significant, $P<0.05$

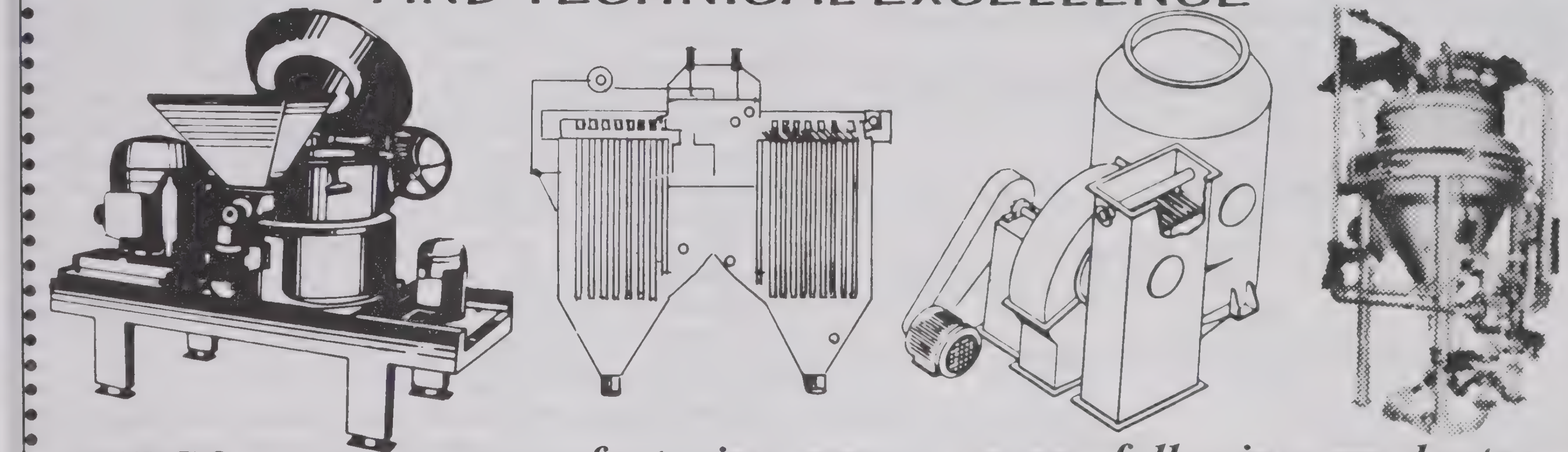
** – Significant, $P<0.01$

Thus the new red gram variety AP-33 had comparable amounts of protein, phenols, total P, calcium, copper, manganese and zinc with the variety T-21 which is considered as reference variety and has been reported to be the best by Kumar ***et al***[8]., The only negative point was higher phytin phosphorus content present in AF-33 which is known to hinder trace mineral availability specifically of zinc[10]. However it contains slightly higher amounts of iron and zinc than T-21 variety. Sensory evaluation also did not show any differences in acceptability scores. Thus AF-33 is as good from nutritional and acceptability point as T-21 with higher grain yield.

References

1. *Sood D R and Dhindsa K S. Studies on food value of some varieties of pigeompea (Cajanus Cajan L. Mill sp). Bull Grain Technol, 1986, 24, 114.*
2. *A.O.A.C. Official Methods of Analysis, Association of Official Analytical Chemists, Washington. D.C. 1980, 12th Ed.*
3. *Piper, C S., Soil and Plant analysis. Inter Science Publication Inc. New York, 1950, 212.*
4. *McCance R A and Widdowson E M., Phytin in buman nutrition. Biochem J., 1935, 29, 2694.*
5. *Snook L C. Cereal grains a source of nutritionally useful phosphorus. Eup. J. Exp Agric. 1938, 6, 20.*
6. *Narasinga Rao B S and Prabhavathi T. An in vitro method for predicting the bioavailability of iron from foods. Amar. J. Clin Nutr 1978, 31, 169.*
7. *Garg M and Bhattacharya L. Pigeon pea: proximate composition of improved strains. Bull Grain Technol, 1990, 28, 89.*
8. *Kumar S. Kumar S. Singh G K. Kumar R. Bhatia NK and Awasthi CP. Variations in quality traits of pigeon pea (Cajanus Cajan L. Mill sp) varieties. J Fd Sci Technol, 1991, 28, 173.*
9. *Deosthale VG and Rao DS. Mineral and Trace element composition of red gram. Indian J Nutr Dietet. 1981, 18, 130.*
10. *Alis R, Movis ER and Hills A B. Bioavailability to rate of iron and zinc in calcium-iron-phytate and calcium-zinc-phytate complexes. Nutr Res 1982, 2, 319.*

A FINE BLEND OF QUALITY PRODUCTS AND TECHNICAL EXCELLENCE



RIECO presents manufacturing range covers following products :

SIZE REDUCTION EQUIPMENT
- CRUSHER
- BANTAM HAMMER MILL
- HAMMER MILL "MICRO PULVERISER"
- UNIVERSAL MILL
- AIR CLASSIFYING MILL
- PRODUCT COLLECTION SYSTEMS TO BE USED WITH ABOVE MACHINES

AIR POLLUTION CONTROL EQUIPMENT
- HIGH EFFICIENCY CYCLONES MULTICLONES
- DUST COLLECTORS (BAG FILTERS)
- GAS CLEANING SYSTEMS
- SCRUBBERS-VENTURY MULTIVANE,
- TUBULAR COOLER

PNEUMATIC CONVEYING SYSTEMS
- LEAN PHASE PRESSURE & VACUUM TYPE
- PELLET CLEANERS
- DENSE PHASE
- AIR SLIDE
- AUTOMATIC SAMPLER,
- BIN FLUIDIZERS
- GRAVITY- BLENDERS
- DIVER TOR VALVES
- FLAP VALVES
- DOM VALVE
- CONTAINER LOADING SYSTEMS
- TANKER LOADING & UNLOADING SYSTEMS.

OTHER PRODUCTS
- ROTARY AIRLOCK VALVES
- HORIZONTAL UNLOADING VALVES
- SCREW CONVEYOR
- RIBBON BLENDER
- INDUSTRIAL FANS
- METAL DETECTOR AND SEPERATOR
- PACKAGING MACHINES (Tube filling and sealing, Liquid filling system and Bag filling system)

SYSTEM CAPABILITY
- EXPERTISE AND EXPERIENCE FOR SIMPLE, COMPLEX, FULLY AUTOMATIC OR TURNKEY PROJECTS.

RIECO INDUSTRIES LTD.
1162/2, Shivajinagar, Behind Observatory, Pune - 411005
● Phone : (020) 5535384,5535215
● Fax : (020) 5533229
● E -mail : rieco@vsnl.com
: s_ pune @ rieco.com
● WEBSITE : www.rieco.com

Studies on Preparation of Carbonated Beverages from Grapes

by
A.S. Rokade, P.M. Kotecha and S.S. Kadam

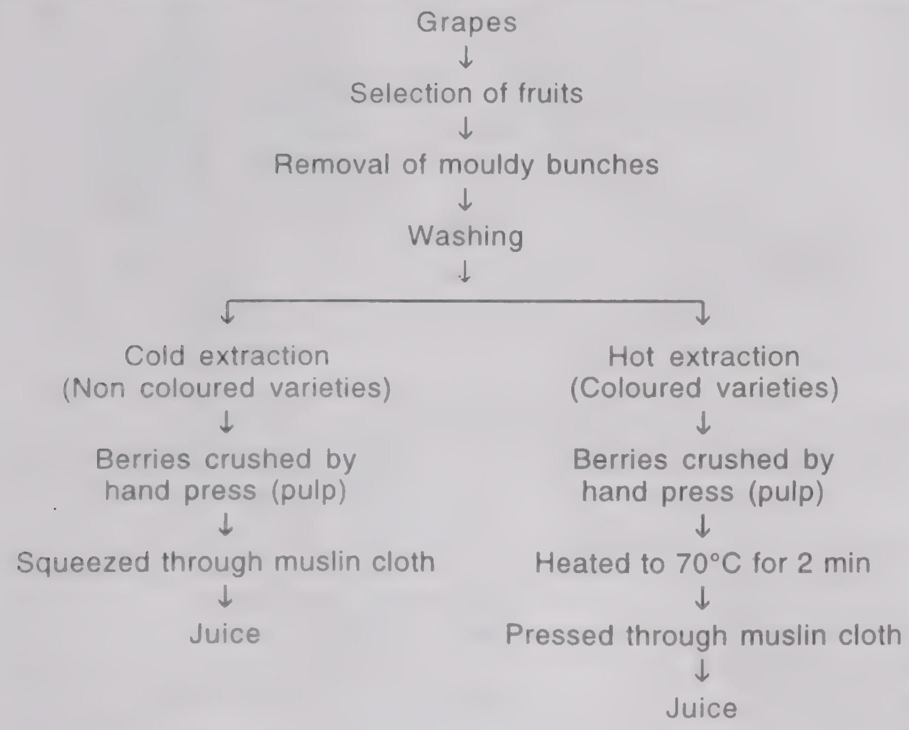
Abstract

The results obtained in the present investigation indicated that the carbonated beverage was superior in organoleptic properties than the non-carbonated beverage. In both the cultivars, carbonated beverage with 0.3 per cent acidity and 14° Brix scored maximum for organoleptic properties.

Introduction

Grape is a perishable commodity so it must be preserved by following appropriate postharvest technology. Grapes can be preserved by processing into different products such as juice, soft drinks, raisins, jam, wine, squash and cordial (Patil ***et al.,*** 1995). Beverages are consumed by people of all age groups to quench their thirst and as a health food. Non-alcoholic beverages of various types such as fruit based drinks, synthetic drinks, sweetened aerated water or carbonated drinks are in common use. In India, cold drinks are in demand for the greater part of the year. The use of fruit juices in preparation of carbonated beverages is practically unknown in India. Many synthetic drinks containing saccharine are consumed in our country. These products have very low nutritive value. If real fruit juice is used in the preparation of carbonated beverage, its nutritive value is increased considerably. Hence, the present investigation was therefore, undertaken to prepare a carbonated beverage from grapes.

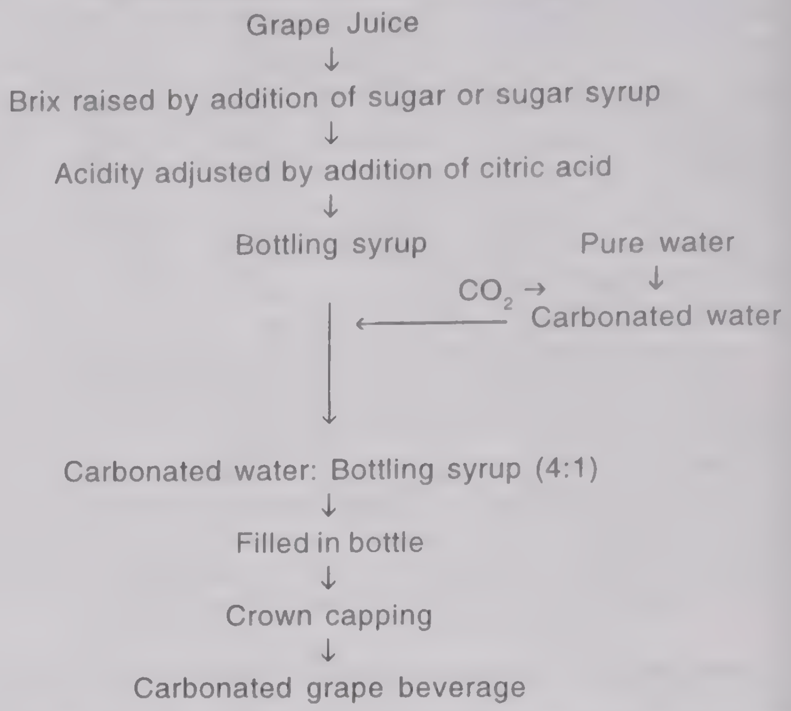
Fig. 1. Schematic diagram for extraction of juice from grapes


Grapes
Selection of fruits
Removal of mouldy bunches
Washing
Cold extraction
(Non coloured varieties)
Berries crushed by
hand press (pulp)
Squeezed through muslin cloth
Juice
Hot extraction
(Coloured varieties)
Berries crushed by
hand press (pulp)
Heated to 70°C for 2 min
Pressed through muslin cloth
Juice

Materials and Methods

The grapes of Thompson Seedless and Sharad Seedless varieties used in present study were obtained from Uday garden, Rahuri. Important steps in extraction of juice are outlined in Figure 1. Carbonated beverages were prepared by using two levels of sugar (12° and 14° Brix). Sugar was added to grape juice and final Brix was adjusted to 60° and 70° Brix. The acidity of this syrup was adjusted with citric acid to 1.25 and 1.50 percent. Pure water was taken, it was carbonated and the syrup was diluted with this carbonated water in 1:4 ratio. This beverage was filled in bottles and crown capped. Carbonation was done with equipment called a soda maker. The concentration of CO_2 in the drink was approximately 1 to 2 gm per 250 ml mixture. The percentage of juice in the final beverage was approximately 7 percent. Various steps in preparation of the carbonated grape beverage are outlined in Figure 2. The beverages obtained were analysed for chemical composition composition as per the methods of Ranganna (1979). The carbonated beverages were evaluated for their sensory qualities by the panel of 6 judges on 9 point scale according to the methods of Amerine ***et al.*** (1965).

Fig. 2. Schematic diagram for preparation of carbonated grape beverage


Grape Juice
Brix raised by addition of sugar or sugar syrup
Acidity adjusted by addition of citric acid
Bottling syrup
Pure water
CO₂
Carbonated water
Carbonated water: Bottling syrup (4:1)
Filled in bottle
Crown capping
Carbonated grape beverage

Results and Discussion

1) Chemical composition of carbonated beverages: The TSS content of carbonated beverage prepared from Thompson seedless juice ranged from 11.8 to 14.0° Brix, and from 12.1 to 14.0° Brix in case of Sharad Seedless variety. The total sugar content of the carbonated beverage ranged from 11.1 to 12.9 percent in case of Thompson Seedless cultivar and from 11.1 to 13.0 per cent in Sharad Seedless cultivar. The acidity of carbonated beverage ranged from 0.25 to 0.30 percent in case of Thompson Seedless variety and from 0.25 to 0.29 percent in Sharad Seedless variety. Whereas, Brix - Acid Ratio ranged from

Table 1. Chemical composition of carbonated beverage prepared from Thompson Seedless Grape juice

Treatment	TSS (°Brix)	Total sugars (%)	Acidity (%)	Brix-Acid Ratio
1*	13.1	12.0	0.28	47.4
2	11.8	11.2	0.25	46.9
3	12.1	11.1	0.30	40.7
4	14.0	12.9	0.26	55.0
5	13.8	12.8	0.30	46.3
S.E. ±	0.144	0.079	0.002	0.741
C.D. at 5%	0.435	0.237	0.005	2.230

Department of Food Science and Technology, Mahatma Phule Krishi Vidyapeth, Rahuri 413722.

Table 1A. Chemical composition of carbonated beverage prepared from Sharad Seedless Grape juice

Treatment	TSS (°Brix)	Total sugars (%)	Acidity (%)	Brix-Acid Ratio
1*	13.0	12.2	0.27	47.8
2	12.1	11.2	0.25	47.8
3	12.2	11.1	0.29	41.6
4	14.0	13.0	0.26	55.0
5	14.0	12.9	0.29	47.3
S.E. ±	0.180	0.076	0.002	0.785
C.D. at 5%	0.541	0.228	0.006	2.360

1 * Non-carbonated – This was recorded as the best treatment from non-carbonated beverages made from juices of Thompson Seedless and Sharad Seedless grapes.

2-5 Carbonated

40.7 to 55.0 in the carbonated beverage prepared from Thompson Seedless juice and from 41.6 to 55.0 in Sharad Seedless variety (Tables 1 and 1A).

The Brix content in the carbonated beverage reported by several workers ranged from 4.79 to 15° Brix (Khurdiya, 1989 and Khurdiya, 1990). The titratable acidity in the carbonated beverage reported by Khurdiya (1990) ranged from 0.40 to 4.15 percent, whereas, the Brix-Acid Ratio ranged from 25 to 50.

2) Sensory properties of carbonated beverages: The average scores for colour and appearance of carbonated beverage prepared from Thompson Seedless cultivar ranged from 6.8 to 7.6 whereas it ranged from 8.0 to 8.4 for beverages prepared from Sharad Seedless. The average score for flavour of carbonated beverage ranged from 6.4 to 8.0 in case of Thompson Seedless cultivar and 7.6 to 8.7 in case of Sharad Seedless. The carbonated beverage prepared from Sharad Seedless scored higher for flavour. The average scores for astringency of carbonated beverage ranged from 6.0 to 8.6 in case of Thompson Seedless and from 6.7 to 8.4 in case of Sharad Seedless. The overall acceptability score for the carbonated beverage ranged from 6.5 to 8.2 in case of Thompson Seedless while in case of Sharad Seedless beverage, average scores ranged from 7.4 to 8.7.

Khurdiya (1989) reported that a drink containing 3 percent juice with 0.2 per cent acidity and 10° Brix, carbonated under 100 psi of carbon dioxide gas pressure was adjudged the best among all. The results showed that all the treatments with Brix-Acid Ratio from 33-50 were acceptable, but the drink with Brix-Acid Ratio 50 was best. Khurdiya (1996) developed a new fruit based carbonated drink from lime and grape juice. A new carbonated beverage developed by blending lime and grape in the ratio of 1:2 had a Brix-Acid Ratio of 50.

References

Amerine, M.A., Pangborn, R.M. and Rosseler, E.B. 1965. Principles of Sensory Evaluation of Foods. Academic Press, New York. pp. 349-397.

Khurdiya, D.S. 1989. Carbonation in fruit beverages. Beverage and Food World; 16(2): 9-11.

Khurdiya, D.S. 1990. A Study on fruit juice based carbonated drink. Indian Food Packer, 44 (6): 45-50.

Khurdiya, D.S. 1996. Processing of Fruits and Vegetables. Group meeting of All India Co-ordinated Research Project on PHT of Hort. Crops. Vol. 2, 1997-98.

Patil, V.K., Chakrawar, V.R., Narwadkar, P.R. and Shinde, G.S. 1995. Grape in Handbook of Fruit Science and Technology (D.K. Salunkhe and S.S. Kadam Eds.), Marcel Dekker, New York. pp. 7-38.

Ranganna, S. 1979. Manual of Analysis of Fruit and Vegetable Products. Tata Mc-Graw Hill Pub., New Delhi. pp. 7-12.

A REPUTED PRIVATE LTD COMPANY (EST : 1989) OFFERS

TWIN SPRAY DRYING (S.S. 316 - L) FACILITY

At VAPI (GUJARAT) For

Aqueous Extracts Of Agriculture / Vegetable / Plants / Spice
Based Raw Materials and
Liquids / Solutions of Food Grade Chemicals

To Be Used As

NATURAL AYURVEDIC HERBAL FOOD: INGREDIENTS

1) With water evaporation capacity of 500 & 1000 lit/hr.
2) Modified plant to give lowest possible product temperature

CONTACT

SCI™

SARVAIYA CHEMICALS INDUSTRIES PVT. LTD.

Regd. Office: C/3, Delite Palace, 1st Floor, M.G. Road, Ghatkopar (W), Mumbai 400 086.
* Tel: (022) 5114968, 512 8114 * Fax: (022) 5148450, 5157529
Website: www. sarvaiya.com Email: sarvaiya@bom5.vsnl.net.in
Factory: Plot 2928-2-2930-1-2929-2935-B.J.Type Area, G. I. D. C., Vapi 396 195,
Gujarat State (India) Tel: (0260) 424941/427941

DR. PRUTHI 'S AWARDS OF HONOUR

Dr. J.S. Pruthi (b.1921) is a well-known Food Scientist & Technologist of National and International repute. During his brilliant professional career spread over 55 years, he has to his credit numerous National and International Honours & Awards based on his several patents, 10 professional books and over 350 R&D papers on different facets of Food Technology (some of which have been frequently published in the "Beverage & Food World" Journal). The Publisher, in collaboration with Dr. J.S. Pruthi, are therefore, pleased to announce the Institution of two Awards of Honour for the best paper published in "Beverage & Food World" in each Calendar Year :

1. "**BEST INNOVATIVE RESEARCH PAPER**" in any Discipline of Food Science & Technology.
2. "**BEST CRITICAL, EXHAUSTIVE REVIEW PAPER**" in any Discipline of Food Science & Technology.

Guidelines for the Two Awards:

(i) **Nature of Annual Awards:** Each award shall comprise of a suitable Gold-Plated Medal approved jointly by Donor and the Publisher.

(ii) **Selection of Awardees**: Shall be made by a Panel of Experts to be nominated jointly by the Donor and the Publisher.

(iii) The Panel of Experts shall screen all the R&D and Review papers published in all the 12 issues of the Beverage & Food World in each calender year concerned.

(iv) The Decision of the Expert Panel shall be final and binding for all Awardees. It shall not be challenged in any Court of Law.

(v) **Frequency of the Award**: Each Award shall be given once a year, at the end of each Calendar year.

Purification and Bleaching of Rice Bran Wax

by

*H.N. Mishra, R.K. Jayabhaye & Chitrangada Das

Abstract

Rice bran wax was purified by removing benzene insoluble fraction as impurities and various solvents were tried for removal of oil from wax. Acetone was found to give good wax recovery and hardness. Recovery of wax decreased with an increase in the extraction temperature. Bleaching was done using nitric acid and hydrogen peroxide. Hydrogen peroxide in the concentration range of 20 to 30 percent and reaction time of 2 hours was found to give better colour. Melting point of the purified rice bran wax was 81-83°C.

Keywords: Rice bran wax, Solvent leaching, Hardness, Bleaching, Deoiling, H_2O_2, Acetone.

Introduction

Rice bran wax is an important by-product of rice bran oil refining removed during winterization. Bennet (1975) compared the properties of rice bran wax to those of the carnauba wax and reported that the hard, high melting fraction of rice bran wax is a suitable substitute for carnauba wax. Rice bran wax has the ability to form homogeneous mixtures with other waxes (Juliano, 1989). United States Food and Drug Administration (USFDA) permits 50 ppm of rice bran wax in coating of fruits and vegetables to prevent moisture loss, as a plasticizer in chewing gum at the rate of 2.5 per cent and in coating for confections such as chocolate (Kert-Othmer, 1989). It is also used in polishes, as a melting point booster for other waxes, as a hardener in leather dressing and for candles, as a base for emulsions in shoe cream and lipstics (Juliano, 1989). With the annual rice bran production of about 3.7 lakh tonnes India can produce about 6000 tonnes of rice bran wax. This can be used in place of carnauba wax which is at present being imported. However, there are certain problems in rice bran wax production. Rice bran wax obtained by winterization during refining has dark colour due to the presence of various impurities like dirt, dust. etc and colouring matter. Bleaching of rice bran wax was done earlier by sulphuric acid (Root ***et al.,*** 1951), hydrogen peroxide (Grist, 1961), mixture of potassium dichromate and sulphuric acid (Panduranga ***et al.,*** 1970). But none of them was successful to bleach the colour of crude wax completely. Hence it is necessary to remove impurities from wax to improve its colour. Also rice bran wax obtained by winterization with centrifuging is a lumpy mass with very little hardness due to the separation of large quantity of oil along with wax. The presence of this oil fraction causes lowering of the melting point of wax. Bhattacharyya ***et al.,*** (1993) could recover 76-86% wax from oil by using anionic and non-ionic surface active compounds.

This paper presents the findings of a study undertaken to evaluate physico-chemical characteristics of crude rice bran wax and to find out the effects of various solvents and extraction temperature on the recovery as well as properties of the pure rice bran wax. Efforts were also made to bleach the colour of the wax using different bleaching agents.

Materials and Methods

The crude rice bran wax, obtained from a local rice-bran oil refinery was subjected to various purification steps like benzene extraction and solvent leaching to remove the impurities and bleaching to improve the colour. The purified and bleached wax was, then, characterised for its various physical and chemical properties. Purification and bleaching process flow chart is presented in Fig.1.

Recovery of deoiled wax

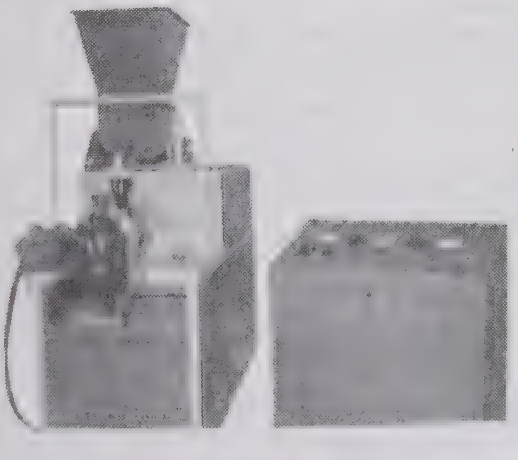
Crude rice bran wax was analyzed for its various physical and chemical properties like melting point, hardness, colour. acid value, saponification value etc. using standard analytical procedures (AOAC 1990). Benzene extraction was done in Soxhlet apparatus to remove impurities as the benzene insoluble fraction. Benzene soluble fraction was used for batch extraction with repeated washings. Three

---

*Corresponding Author
Agricultural and Food Engineering Department, Indian Institute of Technology, Kharagpur - 721302

UNLIMITED RESULTS: ULTIMATE PROFITABILITY WHILE PROCESSING WITH UNQUESTIONABLE EXPERTISE, EXPERIENCE AND INNOVATION SINCE 1980 ONWARDS

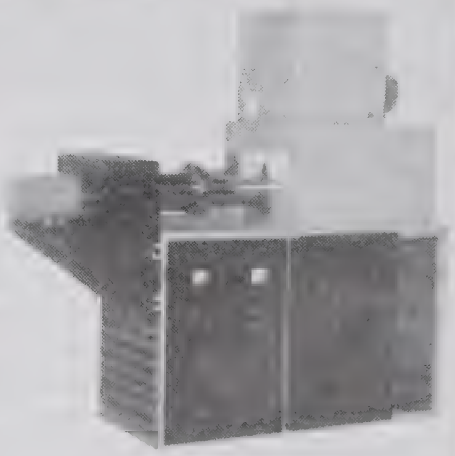
M. Son Industries offers unparellel solutions with wide range of MSF Series Ready to Eat Snack Foods Plants as well other ranges of machines for Processed Food Industries with more output and minimum Nutritional Loss in a Quick Process



SNACKS FOOD PLANT

★ Roasting Plants for Peanuts, Badam, Wheat, Soya Beans ★ Plants for making Alu Bhujia, Gold Finger Vermicelli, Potato Wafers, Corn Flakes, Sewai ★ Conveyorised Roasters and Driers ★ All types of Mixers and Pulverisers ★ Potato Peelers ★ Steam Jacket Kettle ★ Steam Retard ★ S.S. Storage Tanks for Water and Oil ★ Crown Corking Machineries ★ Rotary Roaster ★ Dal Drier ★ Papad Plant ★ All types of Extruders for Vegeterian and Nonvegeterian Processed Food Industries ★ All types of Conveyors for Materials Handling Systems.
Name any Machine/Extruder — We manufacture as per customers requirements

OUR INNOVATION IS CHAPPATI MAKING PLANTS OF 28,000 NUMBERS PER 8 HOURS



SOYA NUGGET PLANT

M. SON INDUSTRIES, D-33 SECTOR -2, NOIDA - 201301 (U.P.). TELEFAX: 011-8-4552177, 4538397• MOBILE: 9810281558
TEL: (R): 011-8-4536955, 4543119 • WEBSITE: www-food.machines.com • Email: mson@nda.vsnl.net.in

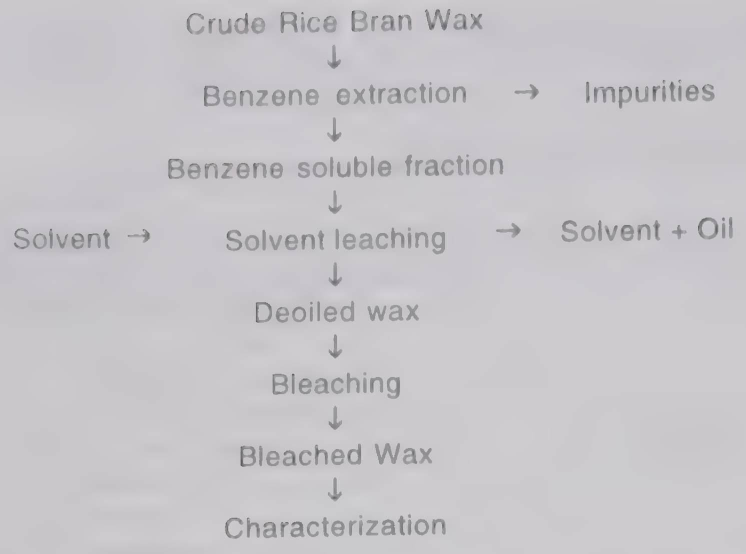


Fig.1 Process Flow chart for purification and bleaching of crude rice bran wax

solvent types viz. acetone, butanone and acetone-butanone (1:1) mixture and four extraction temperatures viz. 1, 18, 31 & 50°C were used to study the effects on wax recovery, hardness and melting point of wax. About 6-8 g of wax taken into a 100 ml[4] weighed beaker and 50-60 ml solvent was added to the wax and mixed thoroughly with a stirrer. The extraction was done at constant temperature. After allowing the wax to settle down, supernatant micelle were decanted and another 50-60 ml of solvent was added to the wax for second extraction. This process was repeated till the supernatant became clear and free from oil. Then the solvent was evaporated from wax and wax recovery was calculated as the ratio of weight of wax obtained to that of the crude wax taken for the extraction expressed as percentage.

Nitric acid bleaching

Nitric acid weighing 1.41–1.42g per ml and having 69-72% concentration was used for bleaching. Nitric acid to wax proportions used were 2:1, 1:1, 0.5:1, 0.2:1 and 0.1:1. For bleaching, 5-6 g wax was weighed into a 250 ml round bottom flask connected to a reflux condenser. Heating the flask on a hot plate melted the wax and nitric acid was added to the flask from the top of the condenser. The bleaching occurred instantaneously with the release of the red fumes of nitrogen dioxide. These fumes were condensed and collected in the flask. Then hot distilled water was added to the flask from the top of the condenser to wash the nitric acid from the wax. The mixture of wax, water and nitric acid was heated till the wax remelted and mixed thoroughly by shaking for one to two minutes. Then the wax was allowed to solidify at the top and water with nitric acid was removed after cooling. Washing of wax with the hot distilled water was repeated three to four times to remove nitric acid completely. The wax was then removed from the flask and put into a beaker, and water if any, was evaporated from it in an oven at about 110°C.

Hydrogen peroxide bleaching

Hydrogen peroxide was used in various concentrations and for various reaction times. Concentrations used were 30, 20, 10 and 5%. Reaction times used were 2 and 4 hours. Wax sample weighing 5-6 g was taken in a 100 ml beaker. The beaker was kept in an oven at 90°C to allow the wax to melt which was followed by the addition of hydrogen peroxide solution to it and mixed thoroughly. The wax-H_2O_2 mixture was maintained at about 90°C to allow the wax to react with hydrogen peroxide for colour bleaching. Simultaneously, the water released by the decomposition of hydrogen peroxide also settled at the bottom of the beaker. The beaker was removed from the oven and allowed to cool. Water at the bottom was removed after the wax solidified. Then wax was kept in the oven at about 110°C to remove any traces of water remaining after which it was allowed to cool in a dessicator and solidify.

Characterisation of treated wax

The purified and bleached rice bran wax was characterised for its physico-chemical properties. Melting point of wax was determined using capillary slip method. Hardness of wax was determined using Kiya hardness tester and Instron Universal Testing Machine. Colour of wax was measured in terms of lightness (L), redness (a), yellowness (b) and yellowness indices (YI) using Hunterlab colorimeter. Various chemical properties such as acid value, saponification value, ester value, per cent unsaponifiables, etc. were determined following standard analytical procedures (AOAC 1990).

Results and Discussion

Organic solvents like acetone, 2-butanone, petroleum ether, chloroform, benzene and methanol were used to determine the solubility of wax in these solvents during soxhlet continuous extraction. The rice bran wax was almost completely soluble (99.5%) in solvents like chloroform, benzene and petroleum ether. Among the solvents used only acetone and butanone showed some degree of selectivity. Effect of extraction temperature on wax recovery, melting point, hardness was studied for acetone, butanone and butanone – acetone mixture (1:1) using batch extraction. Recovery of wax decreased with an increase in extraction temperature (Fig. 2). At a particular extraction temperature (say 1°C) the acetone gave maximum wax recovery (43.8%) followed by acetone – butanone mixture (42%) and butanone (40.1%). By increasing the extraction temperature from 1° to 50°C the wax recovery decreased from 43.8% to 38.5%, 42 to 37.7% and 40.1 to 36.6% for the three type of solvents studied.

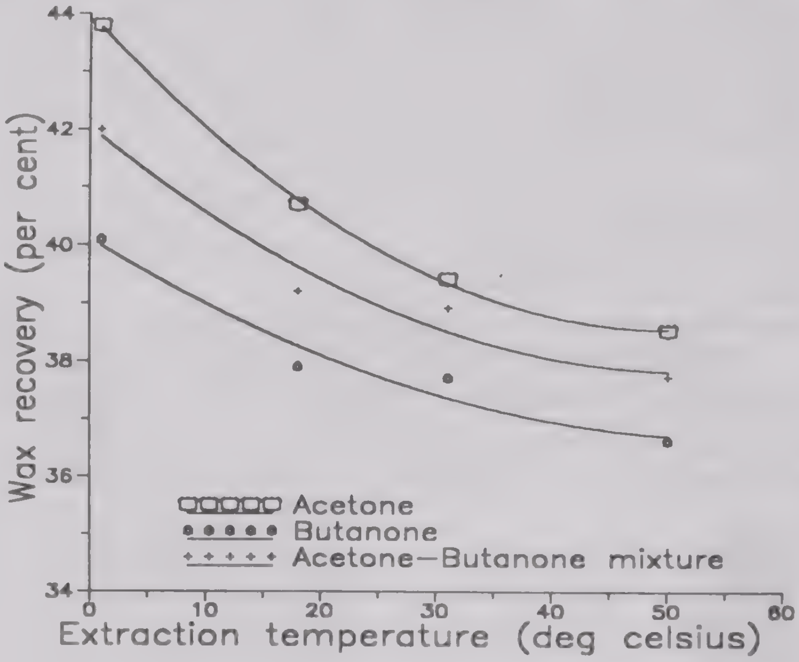


Fig. 2. Effect of extraction temperature and solvent type on the recovery of rice bran wax

The effect of extraction temperature on hardness of wax obtained using the three types of solvents is shown in Fig. 3. The hardness of wax was expressed in terms of breaking strength using 0.5 cm diameter indenter. Both the solvent type and extraction temperature significantly affected the hardness of wax which was found to increase with an increase in temperature for a particular solvent. At a particular temperature, the wax obtained by acetone extraction was harder followed by that of the acetone – butanone mixture and butanone respectively.

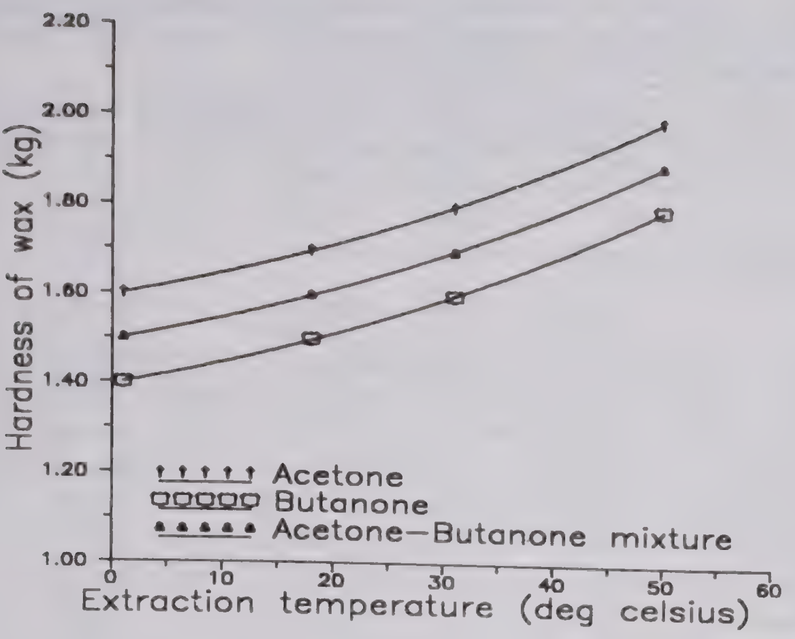


Fig. 3. Effect of extraction temperature and solvent type on hardness of rice bran wax

The relationship of both the wax recovery and hardness with extraction temperature followed quadratic regression equation and gave a correlation coefficient higher than 0.9 for all the solvents. Both the extraction temperature and solvent type had statistically significant effect on wax recovery and hardness. However they did not significantly affect the melting point (Fig. 4) which was found to be about 80 – 83°C irrespective of the type of solvent and the extraction temperature used under the experimental conditions.

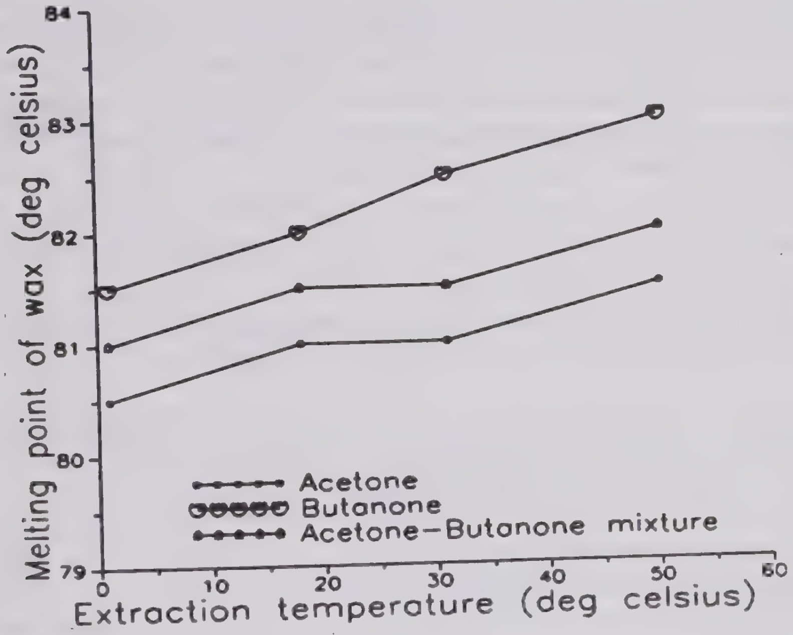


Fig. 4. Effect of extraction temperature and solvent type on melting point of rice bran wax

Colour of the wax was found using Hunterlab colorimeter wherein L, a, b, values and yellowness index were measured for each sample. 'L' designates lightness of the sample where 100 represents white and 0 represents black. The digit 'a' indicates redness when positive and greenness when negative, while 'b' indicates yellowness when positive and blueness when negative. For comparison the colour of crude rice bran wax was taken as standard and all the samples were compared with it. Colour differences in L, a, b values were calculated as

$$\Delta L = L_{sample} - L_{standard}$$
$$\Delta a = a_{sample} - a_{standard}$$
$$\Delta b = b_{sample} - b_{standard}$$

Total colour difference was found out using expression

$$\Delta E = (\Delta L^2 + \Delta a^2 + \Delta b^2)^{0.5}$$

CIE tristimulus values (x, y, z values) were calculated from L, a, b values using following equations:

$$X = 0.98041\ (Y + 0.1\ aL/17.5)$$
$$Y = 0.01L^2$$
$$Z = 1.18103\ (Y - 0.1\ bL/7.0).$$

Yellowness index (YI) was measured using ASTM method D1925 or ASTM method E313.

$$YID1925 = 100\ (1.28X - 1.06Z)/Y$$
$$YIE313 = 100\ (1 - 0.847Z/Y).$$

Brightness (Z%) of wax was calculated as

$$Z\% = Z\ /\ 1.18103.$$

Extraction temperature did not significantly affect the lightness of wax samples. Increase in the extraction temperature resulted in an increase in the redness of the wax. Neither the extraction temperature nor the solvent type affected the yellowness of wax significantly. Acetone insoluble wax was found to be less bright as compared to butanone and acetone – butanone mixture insoluble waxes over lower temperature ranges (Fig. 5). The increase in the extraction temperature, however did not significantly influence the brightness of wax within the experimental conditions.

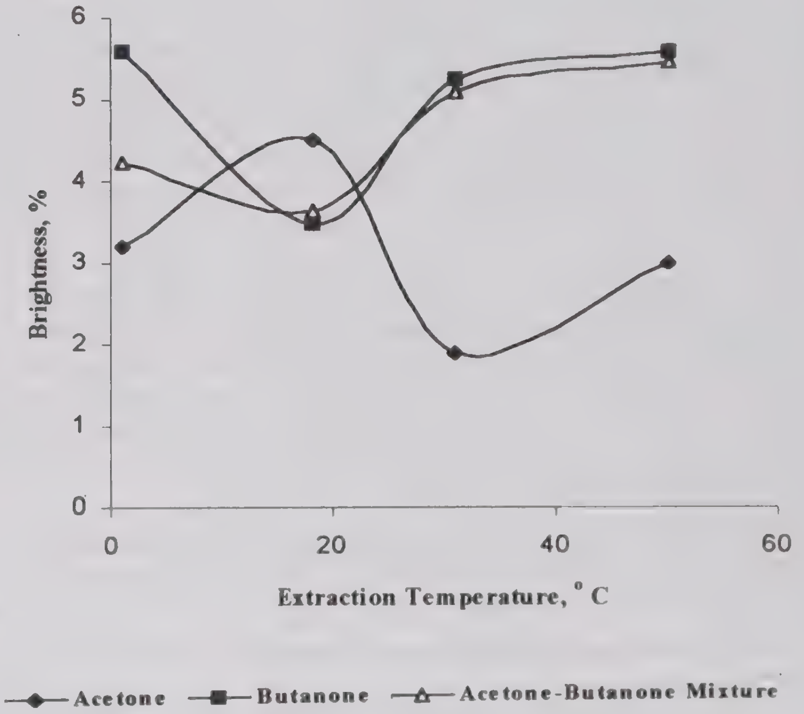


Fig. 5. Effect of extraction temperature and solvent type on colour (brightness) of rice bran wax

Nitric acid bleaching resulted in less light, and more reddish and yellowish wax. Increase in the nitric acid to wax ratio resulted in an increase in the yellowness index and a decrease in the brightness of the wax due to increase

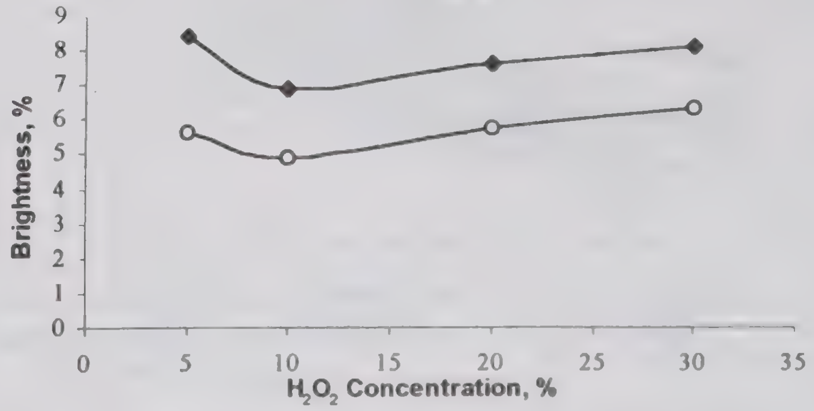


Fig. 6. Effect of H_2O_2 concentration and reaction time on colour (brightness) of rice bran wax

in redness and yellowness and decrease in lightness (Fig. 6). Increase in H_2O_2 concentration was, however, found to decrease yellowness index and increase brightness due to increase in lightness and decrease in redness despite increase in yellowness (Fig. 7). Yellowness indices were found to increase when reaction time increased from 2-4 h due to decrease in lightness and increase in redness.

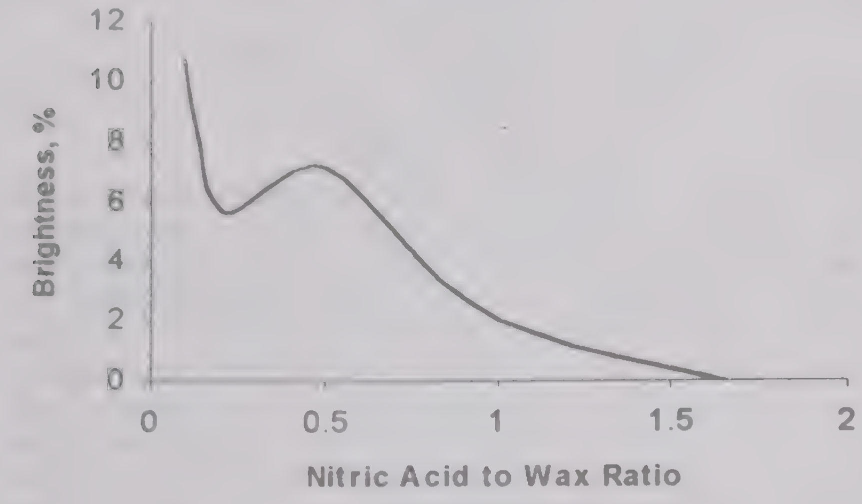


Fig. 7. Effect of Nitric acid to wax ratio on colour of wax

Acetone insoluble, butanone insoluble and acetone-butanone insoluble waxes were characterised by their physical and chemical properties like melting point, hardness, colour, specific gravity, acid value, FFA content, saponification value, ester value and unsaponifiable matters. A comparison of important physical characteristics and chemical properties of rice bran wax samples obtained after extraction with the three types of solvent used with those of the crude rice bran wax have been presented in Table 1. The melting point of crude wax was 71°C which upon purification improved to 80 – 83°C over the experimental ranges for all the three types of solvents. The crude wax had very little hardness in comparison to those of the acetone insoluble wax which had maximum hardness followed by that of the acetone – butanone mixture insoluble and butanone insoluble waxes.

The wax samples produced using all the three types of solvents had high melting point, high hardness and better colour compared to those for the crude wax. The properties of the purified wax samples compared well with the USFDA specifications for rice bran wax.

Table 1.Some important physical characteristics and chemical properties of crude and solvent treated rice bran wax samples.

Property	Crude Wax	Acetone insoluble wax	Butanone insoluble wax	Acetone – butanone (1:1) mixture insoluble wax
Melting point, °C	71.0	80-82	81-83	80.5-82.5
Hardness, N	4.9	40-89	22-69	24-74
Colour value				
L	24.82	35-38	38-44	36.6-41.4
a	2.9	6.42-8.71	5.4-7.9	5.53-7.95
b	9.03	17.2-22.6	16.4-21.6	17.5-20.1
YID	73.74	100-112	93-109	98-109
YIE	51.59	67-77	61-77	68-75
Acid value,	1.32	1.04	1.22	1.08
FFA %oleic acid	0.66	0.52	0.61	0.54
Saponification value	149.6	99.0	102.4	104.5
Ester value	148.28	97.96	101.18	103.42
Unsaponifiable matter, %	50.5	55.1	53.4	54.7

References:

1. *AOAC (1990) Official methods of Analysis, 15th edn. Association of Official Analytical Chemists, Virginia, USA.*
2. *Bennet H. Industrial waxes, vol. I, Chemical Publichsing Co. Inc. New York, (1975) pp 175.*
3. *Bhatacharya DK, Rice bran oil refining and inter esterification. Proceedings of Seminar on Modernization of Rice Milling Industry in West Bengal, Kharagpur, India, (1993) pp 83-86.*
4. *Grist D.H. By-products of the rice industry. J. World crops (1961) 4:154-155.*
5. *Juliano B.O. Rice : Chemistry and Technology, American Association of Cereal Chemists Inc. St. Paul, Minnesota USA, (1951) pp 669.*
6. *Kerk-Othmer Encyclopaedia of Chemical Technology, Vol. 24. A Wiley-interscience Publication, John Wiley and Sons, New York, (1951) p.471*
7. *Panduranga Rao B., Reddy G.S.R., Thirumala Rao, S.D. An improved method of bleaching of rice bran wax. J. Oil Technologists' Association of India, (1970), 2: pp 32-33.*
8. *Root H.H. Bees wax – its properties, testing, production and applications. Chemical Publishing Co. Inc Brooklym, (1951) pp 79-81.*

SAKAV FOOD MACHINES

FRY — DRY — ROAST — TOAST — GRILL — BAKE — COOK
BLANCH — BOIL — STEAM — DEHYDRATE — FREEZE

PACKAGED CONVEYOR SYSTEM
WALK-IN
LARGE CAPACITY BENCH

SAKAV

OVENS – DRYERS – FRYERS – GRILLS – BOILERS
IN ELECTRIC, LPG, DIESEL, STEAM CUSTOM - BUILT STANDARD MACHINES

SHIRSAT ELECTRONICS

133, Dewan Indl. Estate No. 6, Navghar,
Vasai Road (East), Dist. Thane - 401210. INDIA

Tel: 91-250-392946 From Mumbai: (912)
Telefax: 91-250-390793 • Email: sakav@vsnl.com

Studies on Processing of Barhal (Artocarpus Lakoocha Roxb) Fruits

by
I.J. Singh,* H.K. Singh* and C.S. Chopra**

Abstract

Various recipes were evaluated for preparation of RTS (ready to serve beverage), nectar, squash and jelly from barhal fruits. The results revealed that the composition of 10 per cent juices, 10 per cent TSS (total soluble solids) and 0.3 per cent acidity for RTS; 20 per cent juice, 13 per cent TSS and 0.3 per cent acidity for nectar; 25 per cent juice, 45 per cent TSS and 1.0 per cent acidity for squash was found excellent for preparation of barhal beverages. The pectin extract obtained by boiling a mixture of pulp to water ratio of 1:1 for five minutes produced the jelly of ideal quality.

Introduction

Barhal or monkey jack (Artocarpus lakoocha Roxb) belongs to family moraceae. The edible yellow orange portion of fruit is a rich source of minerals particularly, calcium, phosphorous and iron. The flavour of the fruit has been percepted as a pleasant sub-acidic (Nakao Susuka, 1976). The fruit is highly perishable and can be stored only for two-three days at ambient temperature. The pulp is rich in acid. It is refreshing and aromatic and tastes sour-sweet. The unripe fruit is used in making pickles, while the ripe one is mostly utilized fresh in India. High pulp content, attractive colour and pleasant flavour indicates good potentiality for its processing into value added products. However, no attempt has earlier been made by any worker on the processing aspects of this fruit. The present studies were, therefore, undertaken on processing of barhal into various products so as to find out an ideal recipe for making RTS, nectar, squash and jelly.

Material and Methods

Mature-ripe fruits of Akma germplasm of barhal were procured from Akma village of Faizabad district, U.P. during the peak season.

Juice Extraction: Fruits were washed gently in running water to remove dirt and dust particles. Core was separated from fleshy portion by carefully cutting the fruit and the flesh embeded with seeds was blended with equal amount of water. This mix was passed through a pulping machine to obtain juice. After pulping, the juice was strained through muslin cloth and kept overnight at 4-5°C for sedimentation. Thereafter, clear juice was syphoned off. (Fig. 1). TSS of the juice was determined by Hand Refractometer and the reading was corrected to 20°C. Acidity of the juice was estimated by titration against 0.1 N NaOH as described by Ranganna (1986).

Preparation of Beverages: Five litres of each beverage viz. RTS, nectar and squash was prepared by mixing calculated amount of juice, sugar, citric acid and water according to different recipes of each product as given in respective tables. For formulation of recipes, TSS and acidity present in the juice were first determined and then remaining amount of sugar and citric acid were adjusted by syrup prepared by heating the mixture of sugar, citric acid and water (Fig 2).

Fig. 1. Flow sheet for extraction of barhal juice

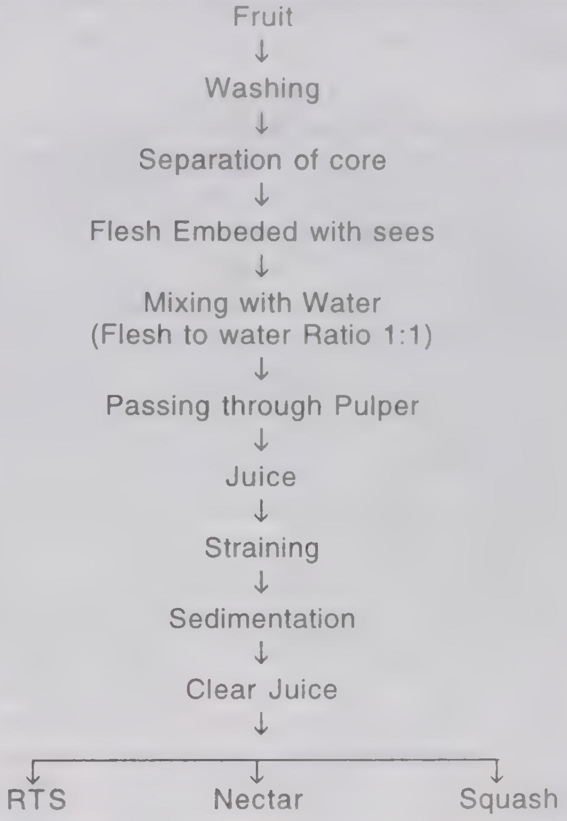
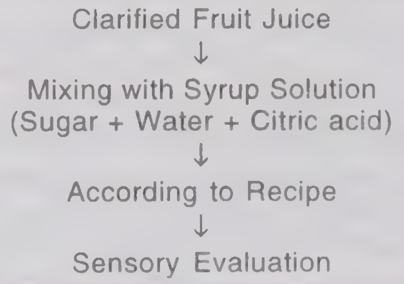


Fig. 2. Flow sheet for the preparation of RTS, Nectar and Squash



Jelly Making: For preparation of jelly, pectin extracts obtained after determination of optimum pulp to water ratio and boiling period (as given in Table 4) were used. The extract was filtered through muslin cloth. Filtered juice after keeping undisturbed for about 3 hours was syphoned off to get the clear pectin extract. To one part of extract, 2/3 parts of sugar (since level of pectin was high in extract as determined by alcohol preciptation method) was added and the content was cooked till it reached to end point (boiling point 105°C). Jelly was filled hot in wide mouth bottles for setting.

Sensory Evaluation: All the products were evaluated organoleptically by a taste panel consisting of seven

Table 4. Organoleptic quality of different recipes of barhal jelly.

Recipe No.	Pulp to water ratio	Boiling time (minutes)	Organoleptic Quality Score	Rating
1.	1:1	5	7.57	Liked moderately
2.	1:1	10	6.29	Liked slightly
3.	1:1:50	5	6.64	Liked slightly
4.	1:1:50	10	6.00	Liked slightly
CD at 5% level			1.01	—

**Deptt. of Horticulture **Deptt. of Food Sci. & Technology N.D. University of Agriculture and Technology, Kumarganj, Faizabad 224 229.*

members. The samples were rated on the Hedonic Rating Scale where, 1 and 9 represented disliked extremely and liked exteremely, respectively (Larmond, 1982).

Statistical Analysis: The data of sensory evaluation was analyzed statistically by the technique of analysis of variance (Anova) as described by Raghuramulu ***et al.,*** (1983).

Results and Discussion

Barhal juice used in the preparation of beverages contained 9.33 per cent total soluble solids (TSS) and 0.58 per cent acidity.

Ready to serve beverage (RTS): The data on formation of RTS beverages are given in Table 1. Results reveal that recipe containing 10 per cent juice, 10 per cent TSS and 0.3 per cent total acidity was found to be the best. Increasing of TSS and acidity beyond 10 and 0.3 per cent, respectively reduced the organoleptic score of the products. There was significant difference between the organoleptic scores of recipe no. 1 and 2 (Table 1). Guava RTS with same composition has also been reported by Pandey (1996).

Table 1. Organoleptic quality of different recipes of barhal R.T.S.

Recipe No.	Juice (%)	Tss (%)	Acidity (%)	Organoleptic Quality Score	Rating
1.	10	10	0.3	8.71	Liked very much
2.	10	10	0.4	7.14	Liked moderately
3.	10	12	0.3	8.00	Liked very much
4.	10	12	0.4	7.14	Liked moderately
5.	10	14	0.3	7.07	Liked moderately
6.	10	14	0.4	6.86	Liked slightly
CD at 5% level				0.66	—

Nectar: Data on organoleptic evaluation of various recipes of nectar presented in Table 2 indicate that a nectar sample with composition 20 percent juice, 13 per cent TSS and 0.3 per cent acidity recorded maximum score (8.50). However, increasing of TSS and acidity beyond these levels diminished the organoleptic quality of nectar. Singh (1983) reported 20 per cent pulp, 14 per cent TSS and 0.3 per cent acidity as an ideal recipe for papaya nectar. Statistical analysis of data revealed that there was significant difference between the scores of products prepared from recipe no. 1 and 2 (Table 2).

Table 2. Organoleptic quality of different recipes of barhal nectar.

Recipe No.	Juice (%)	Tss (%)	Acidity (%)	Organoleptic Quality Score	Rating
1.	20	13	0.3	8.50	Liked very much
2.	20	14	0.3	7.29	Liked moderately
3.	20	15	0.3	6.50	Liked slightly
4.	20	13	0.4	7.00	Liked moderately
5.	20	14	0.4	6.14	Liked slightly
6.	20	15	0.4	6.07	Liked slightly
CD at 5% level				0.64	—

Squash: Data presented in Table 3 shows that the organoleptic score of a recipe containing 25 per cent juice, 45 per cent TSS and 1.0 per cent acidity was the highest (8.64) among the various recipes. Increasing level of acidity beyond 1.0 per cent reduced the rating of squash. Similarly, elevation of TSS from 45 to 50 per cent also lowered the organoleptic scores of the products. Many workers have reported variations in the level of acidity and TSS for squashes prepared from different fruits. Nair and Sharma (1981) reported acidity upto 1.5 per cent for jamun squash. Tressler and Joslyn (1971) reported 50 to 55 per cent TSS and 1 to 2 per cent acidity for passion fruit squash. Similarly, Roy and Singh (1979) suggested 50 per cent TSS and 1.0 per cent acidity for bael squash. The variation in acidity of these findings may possibly be due to differences in chemical composition of fruits. It would be important to mention here that an ideal balance of TSS and acid is required for desirable flavour.

Table 3. Organoleptic quality of different recipes of barhal squash

Recipe No.	Juice (%)	Tss (%)	Acidity (%)	Organoleptic Quality Score	Rating
1.	25	45	1.0	8.64	Liked very much
2.	25	45	1.2	8.00	Liked very much
3.	25	45	1.3	7.00	Liked moderately
4.	25	50	1.0	8.08	Liked very much
5.	25	50	1.2	6.71	Liked slightly
6.	25	50	1.3	6.67	Liked slightly
CD at 5% level				0.76	—

Jelly: Organoleptic quality of various recipes of jelly presented in Table 4 revealed that pectin extract obtained by boiling the pulp and water mixture in 1:1 ratio for 5 minutes produced jelly of the ideal quality. However, there was no significant difference between the organoleptic score of recipe No. 1 and 3. Nair and Sharma (1981) reported that fruit to water ratio of 1:1 (loquat), and 1:1.25 (guava, papaya, jackfruit, aonla and pear) were optimum for successful extraction of pectin. Reduction in organoleptic score of recipes No. 2,3 and 4 may be due to removal of volatile flavouring compounds on account of longer thermal exposure used for extracting the pectin. Increasing level of water used for pectin extraction dilutes the juice and such juice requires greater cooking period to achieve end point. These factors were probably responsible for reduction in organoleptic score of recipes No. 2, 3 and 4. Morris (1951) also reported that longer heating affects the quality of jelly adversely.

References:

1. *Larmond, E. 1982. Laboratory, E. 1982. Laboratory Methods for Sensory Evaluation of Food, Communication Branch, Ottawa, Canada.*

2. *Morris, T.N. 1951. Principle of Food Preservation, Chapman and Hala Ltd., London.*

3. *Nair, S.S. and Sharma, H.C. 1981. Fruit and Vegetable Preservation Technology (In Hindu), Rajasthan Hindi Granth Academy, Jaipur.*

4. *Nakao Sasuka, 1976. Artocarpus lakoocha, Encylopedia of edible plants of the world, 67.*

5. *Pandey, A.K. 1996. Studied on guava (Psidium guajava L.) beverages, Ph.D. Thesis, N.D. University of Agric and Technology, Faizabad, U.P.*

6. *Raghuramulu, N., Nair, K.M., Kalyanasundaram, S. 1983. A manual of laboratory techniques, national institute of nutrition, ICMR, P 359.*

7. *Ranganna, S. 1986. Handbook of Analysis and quality control for fruit and vegetable products. Tata McGraw-Hill Publish. Co. Ltd., P 1103.*

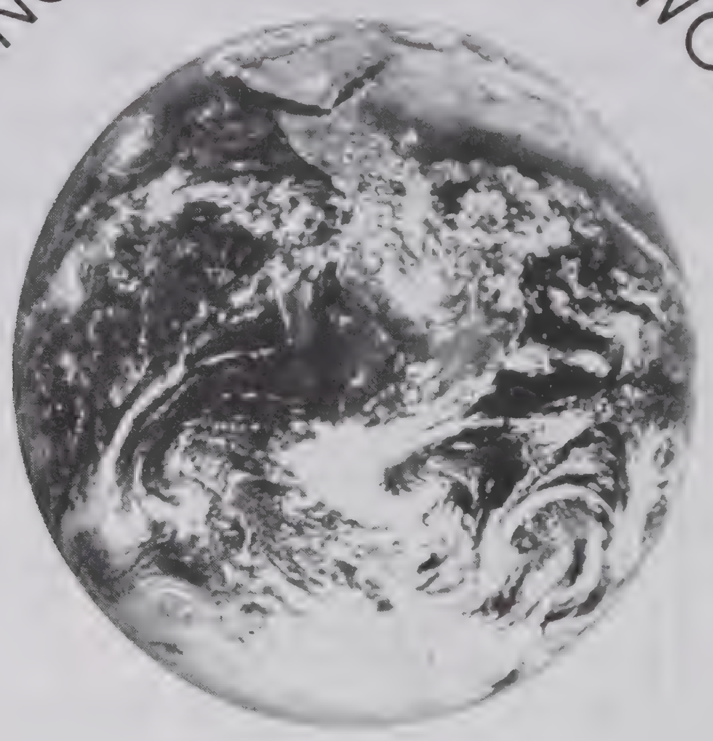
8. *Roy, S.K. and Singh, R.N. 1979. Studies on utilization of bael fruit (Aegle marmelos correa) for processing IV. Storage studies of bael fruit products. Indian Food Packer 33 (6) 3-9.*

9. *Singh, I.S., 1983. Studies on screening of fruit varieties for nectar industries. Paper presented in 3rd. National workshop on PHT of Horticultural Crops, held at T.N. Agri. University, Coimbatore, Sept. 28-30.*

10. *Tressler, D.K. and Joslyn, M.A. 1971. Fruit and Vegetable Juice Processing Technology. The AVI Pub. Co. Inc Westport, Connecticut.*

n the world of food ingredients,
since 1970 . . .

The Palani Group of Companies



Group product range-
Dehydrated Vegetables, Guar Gum, Tamarind, Psyllium, Seeds and Spices, Genu Pectin, Genulacta Carrageenan, Blanose Gum CMC, Benecel, Aquasorb, Locust Bean Gum, Tara Bean Gum, Agar-Agar, Xanthan Gum, Flour Improvers, Bread, Cake and Biscuit-Improvers, and many more products...

NIHAR NENSEY

The Palani Group of Companies

H. Q. : 207, Oberoi Trade Centre, Oberoi Complex, Off Malad Link Road,
Near Laxmi Industrial Estate, Andheri (W), Mumbai (Bombay) - 400 053, India.
Phone #s : 0091 - 22 - 633 0974 * 75 * 76 ; Fax #s : 0091 - 22 - 632 5871 * 632 7941 * 636 1604
E-mail address : palani@bom3.vsnl.net.in

Visit us for more details on our website : www.palanigroup.com

We Invite Editorial Contributions

If your technical/marketing personnel wishes to contribute an Article or Technical paper relating to Food & Beverage processing, we would be happy to publish it. The Articles should be of a general nature, not specially promoting products of your company

If your paper/article does not have diagrams you may send it to us by Email or on Floppy set to MS Word or PageMaker 5.0

We have special issues scheduled during the year (as under) and we invite relevant original articles/ research papers for publication in them.

OCTOBER

DAIRY PRODUCTS & EQUIPMENT
EDIBLE OIL & OILSEEDS

NOVEMBER

TRADE FAIRS &
CONFERENCES SPECIAL

JANUARY 2002

ANNUAL NUMBER
with "Buyers Guide"

The closing date for receipt of the articles/research papers is the 15th day of the month preceeding the special issue.

Write to:
The Editor, Beverage & Food World
Publishers: **The Amalgamated Press**
Narang House, 41, Ambalal Doshi MargMumbai 400 001.
Tel: 2650268 / 2654184 • Fax: 91-22-2641275
Email: dasilva@vsnl.com

Centre for International Trade in Agriculture and Agro-Based Industries

(Established by Yashwantrao Chavan Pratishthan, Mumbai)

Introduction

International agricultural trade and related policies are subject of great interest in today's free trade regime among the agriculture producers, processsors and trading community all over the world. **"Centre for International Trade in Agricultural and Agro-based Industries (CITA)"** is an initiative of Yeshwantrao Chavan Pratishthan, Mumbai supported by prominent apex farmers and agro-processor's federations committed for the development of agriculture and agro-based industries in India.

Realising the significance of focused and professional approach for the Agricultural and agro-based industries many prominent public personalities and eminent professionals have decided to come together and support this effort.

Mission

Collate information on various aspects of agricultural in WTO & international trade between member and important non-member countries and provide it for policies and program to make Indian agriculture and agro-industries globally competitive while protecting interests of Indian farming and Agro-based community.

Objectives

- To keep farming community, their associations and Agro-based industries informed about the latest developments and trends in agriculture in WTO regime and get their feedback.
- To create a network or a group of members from various countries having similar interests.
- To interact with Government of India, various state governments and other policymaking bodies in respect of agriculture policies and programs with reference to WTO developments.
- To keep the farmers, their organization and other functionaries informed about developments in agriculture trade, technologies and policies.
- To have liaison with Goverment of India and state governments and with WTO Secretariat, Other International organizations and NGO's working in the field of agriculture, governments of other countries for forging strategic alliance.

Functions

The major functions of CITA will be to:

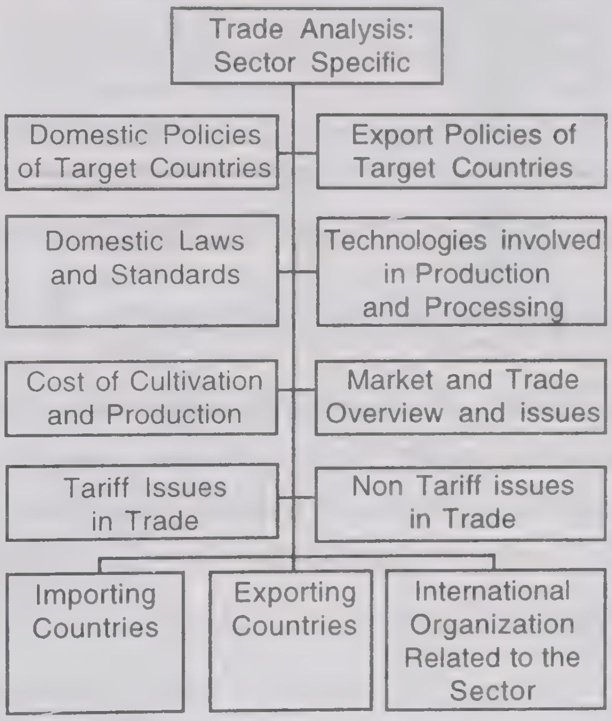
- Collect data and information from the various sources within the country as well as other countries, and also from other national and international organization so as to build up our basic information base and data which will be required for our various programs and proposals to Government of India, to WTO and other policy making bodies and agencies.
- To organize seminars, conferences and round table on various issues related to agriculture and WTO.
- To publish periodicals/newsletters regarding issues and developments on WTO and related matters in the above mentioned sectors.

Sectors to be covered

The following sectors will be monitored by CITA: • Sugar and Sugarcane • Milk and Milk Products • Poultry and Poultry Products • Wheat, Rice and Pulses • Cotton • Horiculture, Vegetables and Floriculture • Oilseeds and Edible Oils • Spices and Tea • Sericulture • Alcoholic Beverages.

Work Plan: CITA will function in a professional and scientific manner to cover all the relevant issues for the stakeholders of Indian agriculture.

A. Protecting National Interests - Sectoral International Trade Analysis


Trade Analysis: Sector Specific
Domestic Policies of Target Countries
Export Policies of Target Countries
Domestic Laws and Standards
Technologies involved in Production and Processing
Cost of Cultivation and Production
Market and Trade Overview and issues
Tariff Issues in Trade
Non Tariff issues in Trade
Importing Countries
Exporting Countries
International Organization Related to the Sector

- Protection to Domestic Agricultural and Agro-Industries from imports: tariff options
- Non-tariff options for domestic Agriculture and Agro-Industries
- Options for government support within WTO framework.
- Sensitizing domestic Industry about new technological options and emerging busines practices in agri-sector
- Providing inputs to government for domestic policy
- Providing inputs to government for multi-lateral negotiations and bilateral negotiations.

B. Acquire Global Competitiveness

Regular monitoring of issues related to how to make Indian Agricultural and Agro-Industries globally competitive.

This well include:

- Marketing Intelligence for selected sectors.
- Monitoring Policy changes in other countries for domestic Industries.
- Monitoring Policy changes in other countries for export promotion.
- Changes in technical and mandatory product specifications.
- Emerging technological changes.
- New developments in bilateral and multilateral agreements.

C. Utilizing Power of Partnership through networking Networking and forging alliance with like-minded organization within India and outside India. They are Government Organisations, Research Organisations, NGO's, Voluntary groups, Chambers of Commerce, various Stake holders and their organizations or any other organization who can extend support to us to protect the interests of India.

Services offered by CITA to its Members: Through its research and outreach programs, CITA will continue to develop linkages with a number of prominent national and foreign institutions as well as international bodies. CITA will work with various apex agriculture federations, organisations and other agencies in organising and delivering outreach programs for member agriculture producers, professionals and policy makers.

Sharing Knowledge and Building Capacity... CITA will deliver advisory and research services in the field of agriculture and agro-based economics to farmers' organisation and agro-based industries enabling them to build both institutional and trade capacity in the globalised economy at the same time to protect the interests of Indian Agriculture and Agro-based Industries from unfair competition.

When Replying
To Advertisements
Please Mention
BEVERAGE
&
FOOD WORLD

Through Multiple Perspectives and Informed Solutions... Through a unique blend of research based on academic perspective, government experience, and private sector expertise from all over the world including India, CITA will prepare agriculture sector and agro-based industries in India to strengthen their place on the global stage in agriculture and agro based industries.

Inspiring Development Across Sectors and Continents... CITA will work collaboratively with various like-minded organisations and professionals within India and outside India across the globe to design short term and long-term solutions to global trade challenges.

Working out Options and Solutions... Indian Agriculture producers and agro-based industries face a range of unique challenges. We work to provide specialised solutions by bringing together experts from different countries, cultures and sectors to design long-term plans to build institutional capacity in Indian agriculture sector.

Almost all CITA events will be organised under our various series headings. They are:

- Agriculture and Agri-Trade Policy Series Programs
- Professional Development Series Programs
- Enhancing Global Competitiveness Series Programs
- Redefining Indian Agriculture Series Programs
- Monthly Agriculture Policy and Trade Update

CITA will use all possible options like Internet based On-line information dissemination system; Print based conventional methods, and Press and electronic Media to Maximize its reach:

Management of CITA: CITA functions under the guidance of a Governing Council comprising eminent personalities from the field of agriculture, trade and agro-based industries and headed by a competent and experienced professional as Executive Director. Because of the diverse background of the members, CITA is a microcosm of the interests at stake in global agricultural policy debates.

Government Council: The Governing Council of CITA includes prominent personalities committed to Indian agriculture and agro-based industries, from public life, farmers organization, the corporate world, the research and academic world and from both public and private institutions which provides overall guidance to CITA.

Operating Teams: A competent professional research team under thr leadership of Executive Director will undertake sector specific researches at CITA.

Financial Support: CITA receives annual support from...

★ Yashwantrao Chavan Pratishthan, Mumbai ★ National Federation of Co-operative Sugar Factories Limited ★ National Egg Co-ordination Committee ★ Indian Sugar Exim Corporation Limited, New Delhi ★ Grape Grower's Association of India ★ Indian Sugar Mills Association, New Delhi • Dynamix Dairy Industries Limited ★ Various organisations in the country are being approached to provide financial support for CITA, CITA may also approach development agencies like NABARD, IDBI, SIDBI, SBI, etc, for their financial support.

We will be happy to have you and your organisation as an active member of CITA in this effort. Please join this mission and maximise your gain in globalised economy. We can assure you, this will be a rewarding decision for both you and your organisation.

For more information
please feel free to contact:

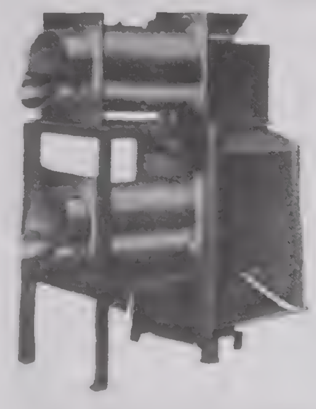
Vijay Sardana
Executive Director
Centre for International Trade
in Agriculture and Agro-based
Industries (CITA)
Vaikunth (3rd Flr.), 82-83
Nehru Place, New Delhi - 110019.
Tel/Fax: +91-11-6480851, 6433094.

Manufacturers and Fabricators of :

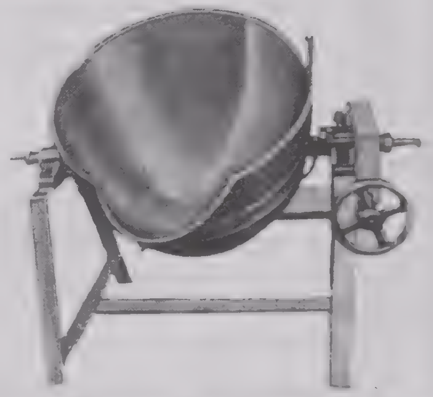
Food Processing Machinery & Equipments

Exhaust Box, Retorts, Steam Jacketed Kettles, Fruit Pulpers
Juice Extract Pineapple Slicers, Mixing and Storage Tanks
Bottle Filling Machines, Bottle Washing Machines, Papaya Cubers
Tomato Choppers And Other Special Machineries

All Machineries are fabricated under
supervision of a Senior Food Technologist
assisted by experienced & qualified Engineers



Pulper-cum-finisher



Steam Jacketed Kettle

Contact:

TECHNO-EQUIPMENTS

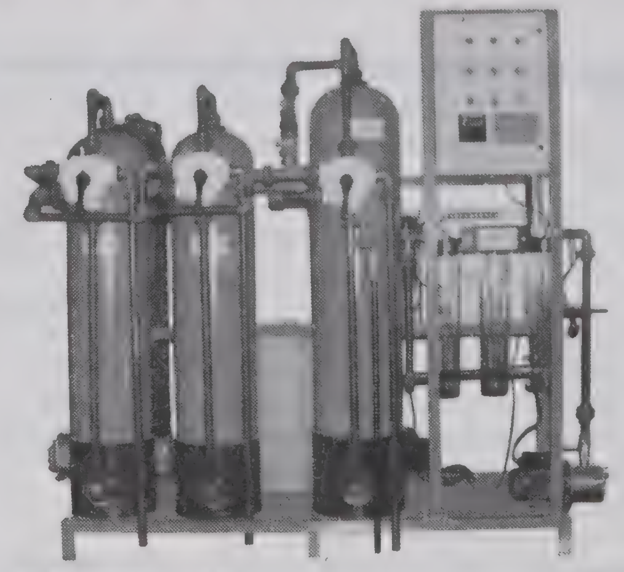
Gala No.9, Satyam Industrial Estate
Behind U.S. Vitamins, Off Bhaktakavi Devashi Marg
Govandi, Mumbai - 400 088
Factory: 5515640

AGUAPURO EQUIPMENTS

The Water Treatment Technology

PRODUCT RANGE:

- ***Reverse Osmosis Plants***
- ***Water Demineralization Plants***
- ***Water Softening Plants***
- ***Water Filteration Plants***
- ***Dosing Equipments***
- ***Micron Filters***
- ***UV Sterilisers***
- ***Ozonization Sterilizer Units***
- ***Swimming Pool Filtration System***
- ***Mineral Water Plant & Machinery***
- ***Domestic Water Treatment Equipments***



PACKAGED MINERAL WATER PLANT

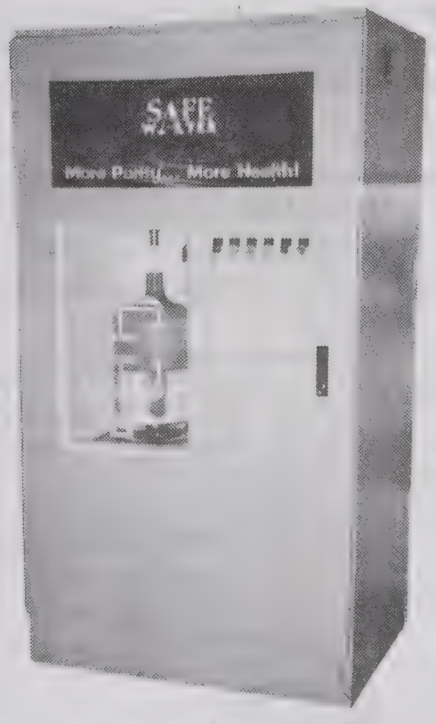
We Provide Water Treatment Solutions for all the applications, few of them are as follows:

- ➲ Food & Beverage Industry
- ➲ Mineral Water Industry
- ➲ Chemical & Pharmaceutical Industry
- ➲ Electronic Industry
- ➲ Hospital & Hospitality Industry
- ➲ Automobile Industry
- ➲ Dairies & Distilleries
- ➲ Residential & Commercial Use

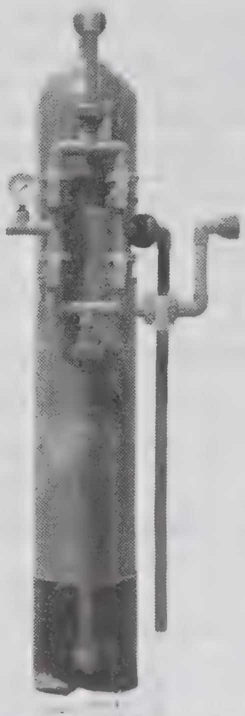
TWO BED DM PLANT

WATER SOFTENER

☆ *We also provide Mineral Water / Glass / Bottle / Pouch / 20 ltr. Jar Filling Machineries and **Laboratory set up** as per BIS (ISI) Requirement*



WATER VENDING MACHINE



SAND / CARBON FILTER

Contact us:

1/101, Panwala Building, Dr. S S Rao Road, Parel, Mumbai 400 012
Tel: 91-22-410 1432, 415 5576 • Cell: 98210 78929 / 98213 54066
Fax: 91-22-410 1432 Email: aguapuro@vsnl.com Website: www.aguapuro.s5.com

LUCID **Lucid Group**

- Lucid Colloids Ltd.
- Lucid International Pvt. Ltd.
- Lucid Technology Pvt. Ltd.

The Quality Hallmark

GUARGUMS, MODIFIED & DERIVATISED GUARGUMS, HYDROCOLLOIDS BLENDS AND STABILISERS FOR FOOD, FEED AND PHARMACEUTICAL APPLICATION EDICOL ™,

STAMULCOL ™, LUCTOMAN ™, PECTOLUC (PECTIN), XANOLUC (XANTHAN GUM), SORBILUC (SORBIC ACID), SODIUM CARBOXYMETHYL CELLULOSE (CMC)

Solutions for the Food Industry...

- ➤ Gelling, Binding, Viscosifying / Thickening
- ➤ Suspension, Stabilisation & Emulsification
- ➤ Water Soluble Fibre enhancement & Fat replacement
- ➤ Water Retention / Water Phase Control
- ➤ Controlled Release
- ➤ Freeze - Thaw Stability, Synersis Control
- ➤ Coating / Encapsulation
- ➤ Preservation
- ➤ Clouding / Bodying
- ➤ Pour Control / Rheology

- Guar Gums, Stabilisers and functional blends, Stamulcol®, Luctoman
- Xanthan Gum (USP/NF, Food, Technical, Clear)
- Glucono-delta-Lactone
- Citric Acid (Mono and Anhydrous)
- Calcium Citrate
- CITROCOAT® - (Encapsulated Citric Acid - Oil /Water soluble)
- ESSICUM® - (Dry Vinegar Flavour)
- CITROFOL® - (Citric Acid Esters)
- Sorbic Acid
- Locust Bean Gum
- Carrageenan's - Food, Feed (Gelcarin® Seagel® Novagel® Avicel® Nutricol® Seakem® Viscarin®)
- Pectins - High Methoxy, Low Methoxy and Amidated In Extra Slow, Slow, Medium and Rapid sets.
- Torula Yeast (Inactive Yeast for flavour/nutrition)
- Sodium Carboxy Methyl Cellulose (CMC)
- Sodium Diacetate

Food applications....

- ♦ **Frozen dairy products like ice-creams, sherbets, frozen ice candies, yoghurt, milkshakes, lassi, buttermilk, flavoured milks, chocolate milk, soft ice creams, soft cheese and cheesespreads.**
- ♦ **Puddings, mousses & icings.**
- ♦ **Jams, jellies, fruits spreads, fruit drinks, preserves, fruit toppings and sauces, fruit crushes.**
- ♦ **Water desert jelly (jello).**
- ♦ **Bakery products, cakes and bakery improvers.**
- ♦ **Canned foods**
- ♦ **Dry mixes-soups, gravies, ice-creams, milkshakes, flavoured milks, jelly, puddings, beverages, masalas, curries.**
- ♦ **Noodles and pasta products, ready-to-eat and semi finished foods products.**
- ♦ **Beverages and health drinks, low fat / low sugar foods, health drinks, slimming aids, high water soluble fiber foods, nutritional foods and beverages**
- ♦ **Flavours, oil-in-water emulsions and encapsulated flavours.**

AUTHORISED DISTRIBUTORS IN INDIA FOR

- ➤ **Jungbunzlauer (Austria)**
- ➤ **Maruha Corporation (Japan)**
- ➤ **FMC (USA)**
- ➤ **Attisholz AG (Switzerland)**
- ➤ **Noviant (Finland)**

Contact us for your needs today !

Address : 401, Navbharat Estate, Zakaria Bunder Road, Sewri (W), Mumbai - 400 015
Tel: 091-022-4158059 • Fax No. : 091-022-4158074/75
For more information about our company and products visit our website *www.lucidgroup.com*

AN ISO 9001 CERTIFIED COMPANY

Lucid in thought lucid in deed!

COMPANY NEWS

NIRULA'S

Nirula's is set to introduce a range of 'speciality breads' positioned on the health platform. The speciality range comprises 14 varieties. Among the other flavours that will be introduced are onion bread, high-rise milk bread, buttermilk rye bread, herbal bread, cracked pepper focaccia bread and caraway roll.

While the company has already been selling milk breads, fruit breads, garlic breads and farmhouse rolls, this is the chain's first foray into health breads. The new range will be sold on the 'good for health' plank. According to research consultancy firm KSA Technopak, of the Rs. 1,630 crore domestic bread market, the share of the organised sector averages less than 50 percent, despite the presence of big players such as Modern Britannia and Harvest Gold.

NESTLE INDIA

The Rs 400 crore table butter market is all set to see a new player – Nestle India Ltd. with the launch of its butter soon, according to dairy industry sources.

The estimated 40,000 tonne annual table butter market is currently dominated by the Gujarat Cooperative Milk Marketing Federation or Amul, which accounts for over 30,000 tonnes of this. Britannia's share is 2,500 tonnes, with other brands (largely those other cooperatives such as Vijaya, Aavin, Parag and Verka) making up the rest. The butter segment is reckoned to be growing by 4-5 percent annually. Nestle butter is available for Rs. 14 for 100 gms pack and Rs. 65 for 500 gms pack.

MAC FARMS

A new fizzy milk drink e-Moo will soon be launched in America as a healthy alternative to soda, and hopes to create a new market for struggling dairy farmers.

The creators of the world's first fizzy milk is Mac Farms of Burlington. e-Moo was developed with the help of food scientists, is fat-free, contains less than 1 percent of cholesterol, about half the sodium found in flavoured milks and has 130 calories in an 8 oz serving. It is made with crystalline fructose instead of refined sugar and provides protein, calcium and vitamins A, C and D. e-Moo will be available in three very American flavours, orange creamsicle, bubble gum and chocolate raspberry.

COCA-COLA

Latest reports in the industry are indicating that Coca-Cola is to expand its product base with milk beverages. This is seen as part of a new push to develop various beverage products that suit consumers' needs and wants at all stages of their lives.

Under a new initiative that Coke calls "Project Mother" the company is developing a number of milk and milk-based products. They have researched ways to counteract negative perceptions of the product from kids who deem them uncool and not refreshing.

NIPPON SUISAN KAISHA LTD.

Nippon Suisan Kaisha Ltd. a major Japanese fishing and seafood company recently purchased the North American seafood business of Anglo-Dutch consumer products giant Unilever Plc for $175 million.

The purchase by Nippon Suisan Kaisha Ltd., of Gorton's Frozen Seafood in the United States and Blue Water in Canada is the first major attempt by a Japanese food producer to cater to US retail consumers.

Gorton's has the top share in the US frozen foods market, while Blue Water has the second biggest share in Canada.

Unilever, whose main brands include Knorr soup, Lipton tea and Dove soap, said the sale was part of its strategy to focus on core brands. Nissui had already been exporting seafood products from North America to the Japanese market, and was also active in processing and marketing activities through two North American subsidiaries, Unisea Inc and Fishking Processors Inc.

Under the deal, Nippon Suisans's fully owned subsidiary Nippon Suisan (U.S.A.) Inc will also acquire three production sites and Gorton's head office in Gloucester, Massachusetts.

INTERBREW

Interbrew, the Belgian brewing giant will soon make in roads into the German beer market, after it takes over the privately owned brewery – Beck GmbH for 3.5 bn marks. ($1.5bn).

Beck's is the fourth largest German brewer with a volume of over 5.5m hectolitres. Approximately 60 percent of its beer production is exported, mainly to the United States. Stella Artois – Interbrew's top brand – and Beck's will represent 10 percent of the global premium lager volumes.

Industry sources had said earlier that Interbrew could run into potential regulatory problems in Britain as its flagship Stella Artois lager is the best-selling premium lager there and Beck's is in third position.

A combination of the two could prompt Britain's regulators, who have already ruled against Interbrew on its bid for Bass brewers, to take a closer look.

BISLERI

Ramesh Chauhan has put on hold his plans to sell up to a 49 percent equity stake in Bisleri to an international foods giant.

As a part of reducing the cost of packaged drinking water, Bisleri will be installing big jars in offices and buildings. At the same time, it will introduce water in small pouches costing Rs 2 or 3 per litre, which is "substantially lower than the prevailing prices in the market."

The company is also modernising and strengthening its 15 plants across the country, along with its three franchises for augmenting supply.

The packaged water giant has already commissioned a Japanese – built recycling PET plant near Mumbai and will soon be setting up similar facilities in Delhi, Kolkata and Bangalore. These plants will be recycling 500 kg of plastic per hour.

Bisleri, which introduced packaged water to the country in the late 1960s, has witnessed significant growth in the 1990s. It has been maintaining its numero uno position consistently in the Rs 1,000 crore bottled water market despite the entry of multinational giants like Pepsi and Coke.

AMUL

Amul has stormed the country with its entry in the pizza market. It will utilise its 20,000 ice cream distributors for the recently launched pizzas. The distributor base will also be used for the soon – to – be launched parathas, paneer pakoras, cheese and Amul ice cream mix in a tetrapack. The last is being pitched as a versatile product which can also double as a milk shake.

As for those who do not want their pizzas hot, Amul has launched the frozen variant which will be marketed under a sub-brand, Snowcap. Apart from Amul dairy products, the other sub-brands include Dhara oil and mineral water, Safal fruits and vegetables and the Utsav range of premium ice creams.

Amul is also all set to launch a wide range of confectionery in north India very soon. Initially Amul will be bringing two flavours (milklair and chocolair) of Eclairs in the market, which constitutes nearly seven percent of the total one lakh tonnes of confectionery market in India.

The Rs 140 crore confectionery industry, has two major players in the Eclair business, Nestle and Cadbury, which share 5 per cent of the market between them.

Eclairs will be outsourced from Campco, Karnataka based cooperative. Later, other chocolate varieties will also be outsourced from Campco.

TT&G TRADING

Corporate doyen L.M. Thapar has formed a joint venture with two foreign liquor companies, Miguel Torres, a leading winery in Spain and J&G Grant of Scotland and established TT&G Trading in India. TT&G Trading will promote and market the products of Miguel Torres and J&G Grant in India.

The products of both these liquor companies were well known internationally. Miguel Torres had wineries in Spain, Chile and the US. The company also made a small variety of food products under the brand name Torre Real. The other company, J&G Grant has a whisky brand, Glenfiddish single malt which was available in 15 year and 30 year old versions and were sold in over 60 countries.

Besides alcoholic beverages, TT&G Trading had been involved in establishing its non-alcoholic products such as fruit and bar syrups in Mumbai, New Delhi, Chandigarh and other parts of North India.

To make imports easier and provide storage to alcoholic and non-alcoholic beverages, the joint venture planned to have its own bonded warehouses.

The warehouse would give Indian customers confidence that they were buying products from the company's own bonded warehouse and need not fear counterfeit liquor.

Specialised storage needed for storing wine bottles could only come from a company's own bonded warehouse. It would reduce inventory cost and give economics of scale, saving foreign exchange costs like freight and forwarding handling.

GUINNESS UDV INDIA LTD.

Guinness UDV India Ltd. will soon launch Johnnie Walker, the world's largest selling scotch whisky, in India. It will soon be available in premium retail outlets across the country.

After "testing the waters" with Johnnie Walker which has an overall recall of 98 percent in the country, the company is looking at introducing its other famous brands such as J&B, the second largest scotch brand and Bailey's, the leading Irish cream liqueur brand, over the next few months.

While a 750 ml bottle of Johnnie Walker Red Label is priced at Rs 1,750, a similar sized bottle of its Black Label variant is priced at Rs 3,500. The initial plans of the company were to increase brand presence.

Among other brands likely to follow suit include Seagram's Chivas Regal which is closely studying the market. Even single malt brands such as Glenfiddich marketed by Bacardi-Martini have been launched recently in the range of Rs 1,250-5,000.

SAN MIGUEL/UNITED BREWERIES

San Miguel Corporation, the Philippines-based multinational, will enter into a fresh licencing agreement with United Breweries (UB). UB gained access to San Miguel through its acquisition of Associated Breweries and Distilleries (ABD) earlier this year. The extension of the licencing agreement will allow UB to manufacture San Miguel in its other breweries as well and make it a truly national brand.

San Miguel is currently manufactured out of one ABD brewery in Mumbai and sold in Goa, Mumbai, Hyderabad and Pune. There is also an option before UB to buy the remaining 35 percent in ABD.

ABD's acquisition gave London Pilsner to UB which will complement UB's main brand Kingfisher; San Miguel will be positioned to take on foreign brands in the domestic market. While setting up a beer manufacturing unit will cost around Rs 65-70 crore, the acquisition benefited UB on both counts – saving costs and gaining entry into the strategic market for foreign brands.

UB also made these acquistions with the expectation that the authorities will start differentiating between low-alcohol beverages, like beer and wine, and hard liquor and hence, help in reducing beer prices.

AMUL/MOTHER DAIRY

Milk producing giants Amul and Mother Dairy, both from the family of the National Dairy Development Board (NDDB), have now carved a place of their own in the niche market. Now Mother Dairy has plans to launch operations in 20 cities in Northern India and the stage is set for a grand competition.

The Rs 900 crore Mother Dairy aims to touch Rs 5,000 crore, while Amul wants to position itself as a Rs 10,000 crore cooperative from Rs 2,250 crore in the next five years.

Initially, ice creams will be the main sector where both will fight it out. Mother Dairy has a marketshare of more than 47 percent in the National Capital Region (NCR) and nearly 10 percent in the entire country, whereas Amul has a 35 percent marketshare in ice-creams in the country.

Mother Dairy has two milk plants in Delhi and the combined capacity of these two plants is around 11,000 lakh tonnes daily. The Amul plant in Anand has a capacity of 45,000 lakh tonnes of milk a day. Mother Dairy has production capacity of nearly 500 kg of ghee a day, while Amul produces nearly 7,500 kg of ghee and butter every day. Amul is way ahead of Mother Dairy and it is apparent that success would eventually depend on networking and distribution channels, and the one with better marketing strategies will score above the other.

If Mother Dairy plans to launch operations in 20 cities early next year, then having only two plants won't help. It will have to increase and strengthen its production. In fact, even outsourcing will have to be increased. It will be interesting to wait and watch how Mother Dairy unfolds its plan in the 20 cities.

PARLE AGRO

Parle Agro is launching its new natural drink by the brand name 'N-joi' is a combination of alphonso mangoes and a dash of milk, with no flavours or additives at all. And it will be served in tetrapaks. It will create a whole new category in natural drinks, unlike other artifically flavoured milk drinks in the market. Other fruit-plus-milk combos such as peach, strawberry and pineapple will be later launched.

The new drink will ride the distribution strength of the company's Frooti and Bailley brands, which has nine lakh outlets. This includes 15,000 outlets in Mumbai. The brand is being sold in 250 ml and 1 litre packs.

Players in the milk drink category include Britannia, Mother Dairy and Amul, which is coming out with its milk shakes and a spate of regional and 'lassi' brand.

A.P. BEVERAGES CORPORATION

The A.P. Beverages Corporation, the Andhra Pradesh state owned company has received a boost due to reclassification of the liquor segments in the state.

The total India made liquor (IML) sales showed a remarkable growth, more than 45 percent of the total IML sales are contributed by the lower categories, the category – which actually crossed the 50 percent mark recently as part of the total sales.

The IML segment had four categories – A,B,C and D categories based on the retail price levels. While category A denoted the lowest category representing low priced or otherwise cheap liquor brands, the category D of IML represented premium brands in the market. The new classification helped create category O as the lowest category in the IML segment with under proof levels of 35 percent and 25 percent.

Earlier the excise duty for category A was Rs 35 per proof litre, the rates after the new classification have been set at Rs 35 per proof litre for category O and Rs 45 per proof litre for category A. The increase in excise rate for category A was done in anticipation of a strong demand from the category.

The category A sales have been slipping after the classification, while there has been a corresponding increase in category O sales. The new excise structure has also helped APBCL to increase its revenues from the category.

MJF GROUP

MJF Group is the largest exporter of packaged or value added tea in Sri Lanka. MJF Group took on the foreign-dominated companies that controlled the trade in colonial times and still tend to ship in bulk for packaging abroad.

Sri Lanka's tea output of a record 306 million kg last year was dwarfed by the 823 million kg of India – the world's largest producer. But India consumes most of what it makes, leaving Sri Lanka the biggest exporter.

But most of the exports last year of 288 million kg were in the form of lower-value bulk tea which is then processed and packaged outside the country, with tea in bags accounting for about just 12 million kg. "Many companies blend different teas from different countries so what you are buying may not be 100 percent Ceylon tea", Mr. Fernando, of MJF Group says.

MJF Group supplied bulk tea to most of the world's major brands in the 60s and 70s before getting a big break from Australia where it won a contract to bag tea for supermarket giant Coles Myer, the country's largest retailer.

Later the MJF Group introduced the "Dilmah" brand of tea. Dilmah now accounts for a 12 percent market share in the Australasia region. The Dilmah brand is the most popular brand in highly competitive Eastern Europe, and will be introduced into Britian and the United States soon. Dilmah brand tea is now also sold in McDonald's restaurants in 26 countries, including Japan.

HINDUSTAN LEVER LIMITED

After Barista, Qwiky's and the FMCG major Nestle launching their coffee pubs and parlours, it is time to savour tea in the ambience of proper tea parlours. According to reliable sources, the Rs 11,000 crore Hindustan Lever Limited (HLL) is mulling branded tea parlours in the country.

HLL has already launched its branded hot tea shops in the south and plans to bring them to the north.

The company has identified retailing as one of its key focus areas. Also, the Lipton brand is being given a push. Like other companies, HLL too is undertaking brand building through experiential marketing.

Committed to an increased focus on Lipton, HLL has already launched flavoured tea, which includes orange & spice, blackberry, mint, honey & lemon among others under the brand. Apart form this, the company has also recently introduced iced tea in the market.

Hindustan Lever Ltd. (HLL) now enters into the low-priced softy ice cream category with the Kwality Wall's brand.

HLL's has been facing a tough time in this business since the demand for ice-creams has been almost stagnant across India and per capita consumption is the world's lowest at 250 mg per person against 22 litres in markets like the US.

The consumer can be assured of getting a completely hygienic and safe softy from a reliable and trusted company. They have combined world class research and technological skills with sound consumer understanding to offer the best tasting soft product at the extremely affordable price.

Lever's market share in India was the highest at 55 percent followed by 35 percent of Amul and Mother dairy together. The total ice-cream market is worth Rs 1,000 crore, 60 percent of which is in the organised sector.

PEPSICO INC.

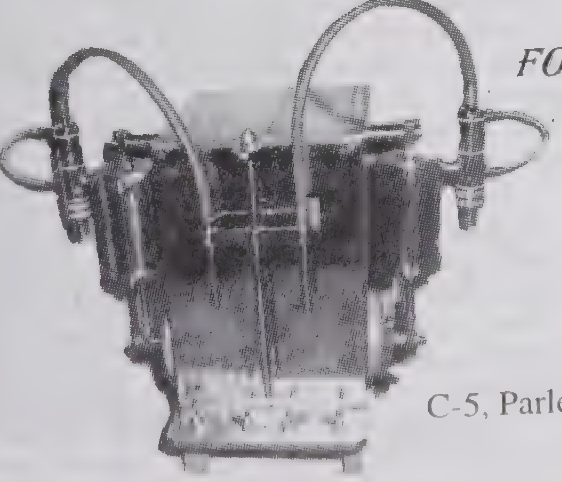
Pepsico Inc recently acquired Quaker Oats Co. for $13bn and has unveiled a new corporate structure. The reorganisation absorbs Quaker's snack and beverage brands into the PepsiCo System, creating one of the largest food and drinks companies in the world. Quaker's grain-based snacks, rice cereals and other instant food products are expected to help PepsiCo expand beyond salty snacks and into the more nutritious snack food segment, especially in the breakfast area.

The Frito- Lay snack operations and Quaker's food businesses overseas will be merged into one unit called Frito-Lay International. This will combine PepsiCo's units with the Quaker snack and food businesses outside North America.

PepsiCo is consolidating its international beverage operations. PepsiCo will form a new unit called PepsiCo Beverages International that will fold Pepsi's three international beverage units into one unit. It is expected to funnel Tropicana juice products through Gatorade's warehouse distribution system, which should bolster sales and cut costs.

Another new unit, Frito-Lay North America, will be focusing on growing the company's convenience food business, such as snack kits, grain and cereal bars and other products. That unit will not include the company's core salty-snacks business.

PepsiCo will consolidate some beverage production and packing in Chicago, which will cut costs for its Gatorade, Tropicana Twister, Dole, Season's Best, SoBe and other brands. PepsiCo will also include Quaker's business in its purchasing system.



Volumetric Filler

CHHAYA ENTERPRISE

Manufacturers of

FOOD & BEVERAGES MACHINERY

Specialists For:

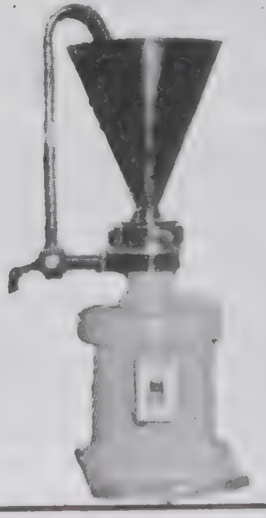
SYRINGES, LOBE PUMPS

&

MACHINERY SPARE PARTS

C-5, Parle Colony, Sahar Road, Vile Parle (E), Mumbai 400 057
Factory Tel: 832 9259, Resi: 820 5584

Colloid Mill



DAMODAR CASHEW COMPANY

Kerala-based Damodar Cashew Co. has been granted the coveted quality system certification ISO 9002 for its excellence in processing and packaging of cashew kernels. This is the second unit in the country to be accredited with ISO 9002 certification.

GODREJ AGROVET

Fresh processed chicken will soon be available in Mumbai with the launch of "Real Good Chicken" by Godrej Agrovet. The Real Good Chicken was so far confined to Bangalore and other southern states where it was launched quite some time back. The brand has no competitors. Real Good Chicken is from the American-bred Avaian bird. Being a fresh product, it has a shelf life of only 1-2 days unlike frozen chicken which lasts for a month. If the product doesn't sell within the specified period, it is retrieved from the shelf by the company. In Bangalore, the price of Real Good Chicken averaged Rs 70 a Kilogram last year, higher by Rs 12-15 a Kg than the market.

The integrated poultry business chain of GAVL., starting from breeding of grandparent stock, parent stock, day-old chicks, to large scale contract farming and live bird selling, is projected to be the fastest growing division of the company. GAVL plans to step up contract forming in the poultry business in a major way. The company supplies day-old chicks to farmers, which are reared into grown-up chickens. The company buys back the chicken from the farmers at a certain price, processes and markets it. GAVL also provides feed, vaccines and medication to farmers, besides giving them tips on farm management, improving production weight gain and on reducing mortality.

SHRIRAM BIO

The Department of Biotechnology (DBT) has transferred the technology for production of xanthan gum to Hyderabad-based Shriram Biotech. The technology was developed by the Birla Institute of Scientific Research (BISR) in Jaipur which functions under the DBT.

Xanthan is a microbial polysaccharide, used as a thickening agent, gelling agent, stabiliser and in recovery of oil. This is a major break through as xanthan has so far been imported by the food, pharma and industrial sectors, including oil drilling companies. Of late, it is being dumped into the country by China.

The demand for the product is about 300 tonnes per annum. US based C P Kelco is a major supplier. The price of imported xanthan gum ranges between Rs 800 and Rs 3,000 depending on the end-use. Under the licence agreement, Shriram Biotech will scale the lab-level technology to large-scale levels and begin indigenous production in about six months.

DBT secretary Manju Sharma said such import substitution would be essential in the WTO regime. As a bacterial extra-cellular product, xanthan would help leach out the oil, especially in dry wells where pressure fails to extract oil.

SHAW WALLACE & HEDGES

Shaw Wallace & Hedges is a public limited company and markets a range of consumer products such as canned fish, edible oil and ajinomoto, international wines and spirits, and automotive products through out Sri Lanka.

The company has also tied up with William Grants and Sons of Scotland to distribute the Grants range of products.

According to the company, despite the adverse socio-economic situation in Sri Lanka, Shaw Wallace & Hedges made a profit before tax of Rs 1.15 crore in the last financial year.

DS GROUP

The DS Group, of the Catch salt and pepper, Baba Zarda and Pass Pass fame, has now diversified into packaging. The company has entered into a technological collaboration with Canpac International of Switzerland to form its packaging venture, DS Canpac. Canpac International AG has supplied its latest patented technology to the group and DS Canpac will serve as a hub for marketing these integrated composite cans in Asia, says Mr Ashok Aggarwal, vice president, DS Group.

The company is also negotiating tie-ups with MNC's such as HLL and Nestle to provide packaging for their products. The packaging plant has the capacity to produce 1 lakh cans per day, out of which 50,000 will be used for packaging in-house products. The rest could be offered to others. Mr Aggarwal said that the company may even consider launching new food products to use up its packaging capacity.

This attractive packaging would add value and also bring about a three-fold increase in the products shelf life. Canpac is easy to open, pilfer proof, eco-friendly, biogradable, light in weight and re-useable. It works out to be 20 percent cheaper than the traditional tin packaging.

GRUPO MODELO

Mexican Beer giant Grupo Modelo has launched Corona beer in India. It is the fifth largest selling beer brand in the world. It will be available at Rs 150 for 330 ml bottle and directly by competes with Heineken beer which is priced at Rs 130 a bottle.

The Mexican brewer, hopes to sell Rs 5 crore worth of beer in the first six months. Initially the product is being imported by Brindco, a company involved in distribution of various liquor brands and sells over 4.9m cases of Indian made foreign liquor. Corono was exclusively brewed in Mexico and was made with all natural ingredients like water, barley, yeast and hops.

CADBURY INDIA

Cadbury India is set to launch premium chocolate in the Indian market called Temptations, available in five flavours. Roast, Almond Coffee, Honey Apricot, Mint Crunch, Black Forest and Old Jamaica (a rum-and-raisin combination).

The brand is priced at Rs. 30 for a 64g pack for all variants. Even though Cadbury India terms Temptations a premium brand, the price-value equation is even more competitive than that of its most expensive offerings in the — Roast Almond and Fruit 'n' Nut — which retail for Rs. 22 for each 40 g pack.

The company hopes to capture 5 per cent of the overall chocolate market, of which it already has a 69.2 per cent marketshare. As a result, Temptations could contribute anything between 5 and 10 per cent to Cadbury's total revenues, which stood at Rs. 571 crore for the year ended December 31 '00.

Temptations is made of blended chocolate and is " a little more adult" than Cadbury Dairy Milk bar. It's aimed at consumers aged 20 to 45, who are already frequent consumers of chocolate.

Some new flavours — like Mint, Crunch and old Jamaica — are sold in other countries and have been adapted to suit Indian tastes. Other flavours such as Roast Almond Coffee and Honey Apricot (by far the most popular of all the flavour tested in India) are unique and will be sold for the first time, in any market.

SOUTH AFRICAN BREWERIES

South African Breweries is the world's largest brewery by volume. Recently SAB has acquired Narang Brewery and Mysore Breweries in India. Now in a move to make itself a single operating unit it is set to merge the two Breweries.

Roy Bagattini, managing director SAB India, expects to cross 90 per cent stake in Mysore Breweries.

If SAB chooses to integrate its operations in India, it is important for the multinational to make its acquisitions wholly-owned subsidiaries, which will make the process easier.

SAB is focused on investing in growing markets and establishing significant local presence. While Narang Brewery has given it access to UP, Mysore Breweries has given the company entry into large and important beer markets of Maharashtra, Andhra and Karnataka.

South African Breweries will launch its Castle beer in India soon. Castle, ranks among the top ten global beer brands

For Your Regular Requirements of the Following at Competitive Prices:-

- Aspartame
- Acesulfame K.
- Calcium Propionate
- Carrageenan
- Enzymes
- Glucono Delta Lactone
- Glyceryl Mono Stearate (GMS)
- Mono Sodium Glutamate
- Pectin
- Potassium Sorbate
- Preservatives
- Sodium Benzoate
- Sodium Citrate
- Sorbic Acid
- Sweeteners
- Xanthan Gum

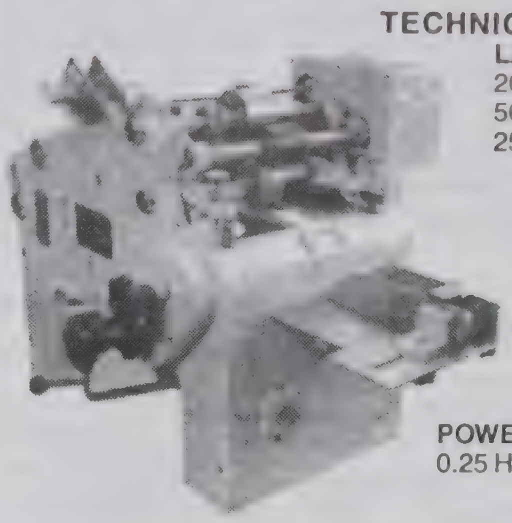
Please Contact Authorised Distributors:-

JAY CHEM MARKETING

B/5, 3rd Flr, Nemi Krishna Soc.
V.L. Rd., Kandivali (West), Mumbai - 400 067.
Tel. Nos: (022) 8020141 / 8061337
Fax No: (022) 8061337
Email: jaychem@bom3.vsnl.net.in

HIGH SPEED AUTOMATIC LABEL CODE PRINTING M/C.

GEW-250



TECHNICAL SPECIFICATIONS

LABEL SIZE :
205 mm x 155 mm Maximum
50 mm x 20 mm Minimum
25 mm x 16 mm Special Size

OUTPUT :
125 Labels per minute
180 Labels per minute
250 Labels per minute

POWER :
0.25 HP/ 1440 RPM / 414 V./3 Phase

Also Available High Speed Auto. Carton Code Printing M/C GEW-250 C

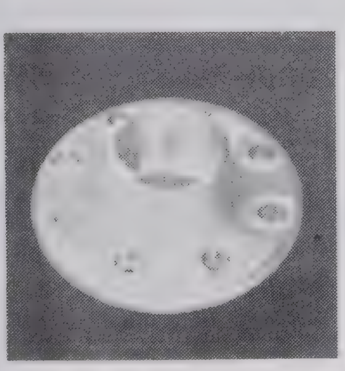
OUR OTHER RANGE :

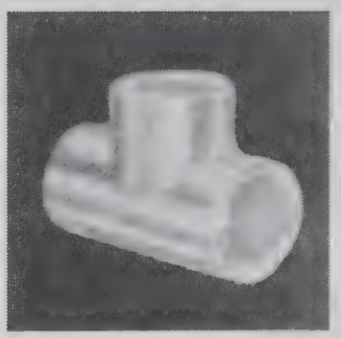
- AUTO LINEAR TUBE FILLING AND CRIMPING MACHINE (PNEUMATIC SYSTEM)
- SEMI AUTO. ROPP CAP SEALING MACHINE
- S.S. CENTRIFUGAL PUMP

Semi Auto. Code Printing Machine GEW-45.

GOPAL ENGINEERING WORKS
2/4, 5, KAILASH IND. ESTATE, B/H, C.M.C. ODHAV,
AHMEDABAD - 382 415. INDIA **TELE/FAX : (079) 287 49 69**

A TRUSTED NAME FOR ENGINEERING INDUSTRIES



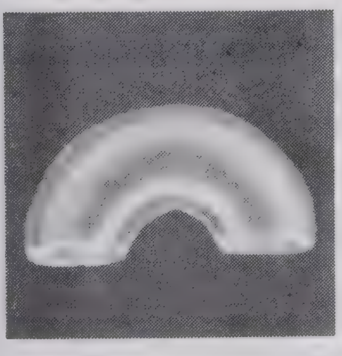


Manufacturers, Stockists & Suppliers:

STAINLESS STEEL, C.S. PIPES & PIPE FITTINGS

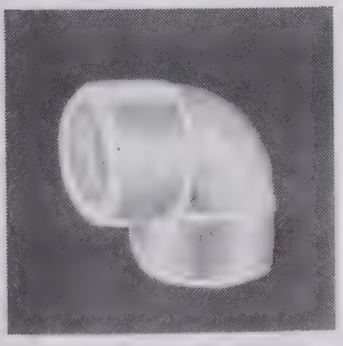
Specialists in :

Elbow, Bend, Return Elbow, Tee, Reducer, Caps, Flanges, stu-bend, Union, Nipple, Dairy & Forge Fittings.



We Manufacture :

According To Your Specifications And Blue Prints At Most Modernate Rates.



S. B. Steel & Engg. Co.
S. B. Steel Supply

70, Kesuri House, 3rd Floor, R-39,
2nd Kumbharwada, Mumbai - 400 004.
Tel/Fax : 385 8303
Mobile : 98201-20191 • Resi.: 387 5092

Serving Leading Large Industries & Government Departments

with Castle's entry into India, stiff competition is expected to start brewing in the industry. The positioning will be in direct competition to India's largest selling beer brand Kingfisher of United Breweries. The other competition will be Foster's in Mumbai. But for locally manufacturing the beer SAB may require to upgrade the breweries it has acquired in India, industry sources said.

NESTLE / FONTERRA CO. OP. GROUP

Switzerland's Nestle, the world's biggest food group is negotiating for an alliance with New Zealand vs newly formed "Fonterra Co-operative Group". The two firms aim to form "a number of joint ventures" and expect considerable benefits from their alliance.

Fonterra is a newly formed dairy processor and marketer created through the merger of almost all of New Zealand's dairy industry, including the NZ Dairy Board. The joint ventures with Nestle would cover milk foods and beverages but not cheese, butter or infant formula.

Benefits would include joint sales programmes, sharing assets and 'optimal use of research and development. Nestle is both a rival and a customer for the New Zealand dairy sector, which dominates the small international dairy trading sector. Known previously by its working title of Global Dairy. Fonterra brings together the New Zealand Dairy Group, Kiwi Co-operative Dairies and the Dairy Board.

Fonterra, with more than NZ$11bn in assets, operates in 120 countries, earns more than 20 per cent of New Zealand's export receipts and generates seven percent of GDP.

PERFETTI INDIA

Perfetti India, a subsidiary of Perfetti Spa, Italy has introduced a gum with functional benefits, under the brand Happydent White. The company claims that the gum contains baking soda which neutralises all acids in the mouth and helps prevent tooth decay. Also, according to the company, the gum, contains ayurvedic ingredients that help in cleaning teeth while reducing plaque formation.

Priced at Rs 2 for a pack of three gum dragees, the product is available in Delhi only. Perfetti India's product portfolio includes Alpenliebe, Centre Fresh, Big Bubble, Coffitos, Cloremint among others.

PIZZA HUT

Speciality Restaurants 'Pizza Hut' outlets will be taken over by Pepsi bottling giant Ravi Jaipura. Speciality Restaurant was promoted by Milkfood owned by Jagatjit Industries.

With Speciality Restaurants exiting the pizza business, Mr Jaipuria will emerge as the sole Pizza Hut franchisee in north India.

The transaction involves Devyani International, a Jaipuria group company, which is buying out Speciality Restaurants, which owns and operates four Pizza Hut outlets in Delhi and Chandigarh.

At present, Mr Jaipura owns nine Pizza Hut outlets in Delhi, Jaipur, Agra and Noida. According to company insiders, he plans to open another six outlets in the coming year. With the acquisition of Milkfood's four outlets in Connaught Place, Greater Kailash, Basant Lok and Chandigarh, Mr Jaipuria will own 19 Pizza Hut outlets by next year.

SHAW WALLACE & CO.

Manu Chhabria, a Dubai based business man and the elder of the two Chhabira brothers has returned to India and will restructure Shaw Wallace's course to go global. This exercise is aimed at sharpening focus on the core areas of liquor and beer by consolidating beer and liquor businesses under two distinct subsidiaries.

The proposed joint venture with a global partner will work as a two-way traffic for beer brands. The JV will be leveraged to access overseas markets for SWC brands while at the same time allow international brands from the foreign partners portfolio, to enter Indian markets utilising SWC's considerable marketing and distribution network.

SWC has already garnered 27 percent of the market in beer. The strategy is to notch up a greater markershare in the mild beer segment with its brand – Royal Challenge Premium Lager.

SWC has been able to increase market share with sharp focus on the strong beer segment with its brand Haywards. as a result of this, Haywards 5000 has emerged as the largest selling strong beer brand. In fact, this growth of Haywards 5000 has tilted the balance in favour of strong beer.

SWC is setting up breweries in Kerala, Madhya Pradesh, Bengal and Karnataka at an investment of Rs 100 crore to effectively increase its geographical presence right across the country.

Chhabria brothers have teamed up to battle against UB group chairman Mr. Vijay Mallya for control of liquor company Herbertson, where Kishore Chhabria is the Vice Chairman.

KRAFT FOOD

The largest US food company, Kraft Foods recently acquired Nabisco and is looking for further acquisitions in health foods, snacks and beverages sector.

Kraft was eager to use Balance Bar and Boca Burger, two brands acquired before Nabisco, as platforms for a much broader range of "functional" food products.

Balance which makes energy bars offering a mix of proteins, carbohydrates and fats was a great trademark to extend and Boca could be used as a brand for other soy products.

Kraft has a strong record for expanding its brands into new areas. Salomon Smith Barney estimates that more than half of the sales of the company's Jell-O desserts is derived from ready-to-eat products that barely existed 10 years ago.

Mr Deromedi head of Kraft's international business said Kraft was also focusing on co-branding opportunities with Nabisco's stable of biscuit and snack brands. He also added that it would not rush to make larger acquisitions.

BEL CHEESE

Global cheese producer Bel wants its brands to become the most favoured nibble in India. After 'Laughing Cow' cheese, Bel plans to set up a 100 per cent subsidiary in India. The idea is to use the country as a manufacturing hub for 100 per cent vegetarian cheese.

Bel's partners in India are bringing in two more brands from the French cheese maker: Kiri and BabyBel. Kiri has a cream base, while BabyBel is a semi hard cheese, hugely popular with kids in the European markets.

Since Bel wants to promote cheese as a snack food to be nibbled anytime and not just as a breakfast accompaniment, kids will be its target consumers.

Bel has around 400 cheese brands in its portfolio. Some are clearly unsuitable for the Indian palate due to its pungent taste and odour. But there are other brands, which have the potential to do good business in India, if competitively priced, and can add to the group's annual turnover of over 10 billion French francs.

The cheese market is estimated at 6500 tonnes. While cheese tins account for 50 per cent of the market, cubes and slices account for 25 per cent and 15 per cent respectively. Cheese spreads account for the rest.

AB ENZYMES GmbH

AB Enzymes is one of the world's leading producers of enzymes for the food sector. In addition, the company manufactures and markets enzymes for animal feed, textiles and the pulp and paper industry, with growing success. Its product range ties in very well with that of Associated British Foods. The ABF owns Britain's leading sugar producer (British Sugar), largest bread manufacturer (Allied Bakeries) and second-largest millers' association (Allied Mills).

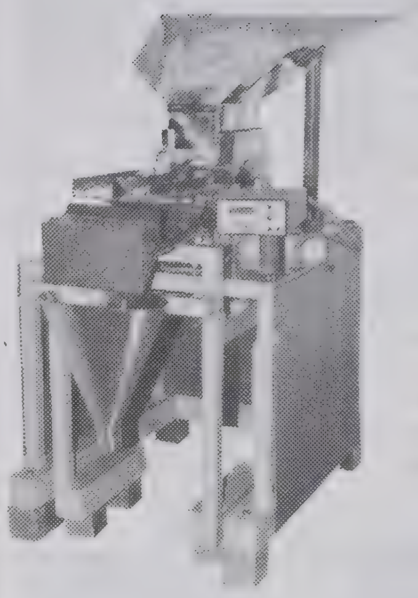
AB Enzymes sells more than 70 different enzyme products in over 50 countries worldwide, as far away as Mauritius. It maintains offices in Singapore, Beijing and the USA. Production facilities are located at ROAL Oy (Rajamaki, Finland), which has fermentation capacity of 450 m^3.

Bombay Industrial Engineers

13, Crystal Apartments,
Gulmohar Cross Road, 11 J.V. P.D.
Bombay 400 049
Tel : 6232810 ● Telefax:620 1914
Email: ijsehgal@bom5.vsnl.net.in

* FOOD PROCESSING MACHINERY: Pulpers, Juice Extractors, Steam Jacketed Kettles, Fruit Slicers-Crushers, Mango Cutter & Canning Retorts
* Hot/Cold Liquid Filling Lines, Bottle Closing Powder Filling, Form Fill Sealing Machines
* DRYERS - Tray, Tunnel, Drum, Fluid Bed
* Biscuit-Bread making Machinery
* Toffee-Hard Boiled Sweet Machinery
* Chewing Gum making Machinery
* Cloth Raising Machine
* Boilers - Thermopacks
* Sigma Kneaders, High Speed Mixers Planetary Mixers & Powder Mixers
* Weighing Machines
* BOPP/Industrial Tapes Manufacturing Machine & Plant

KAIZEN
TULA
Semi-Automatic weigh-fill machine.



- Useful for Tea, Coffee beans; Sugar, Grains, Pulses, Oilseeds, Wafers, Farsan, Dryfruits, and any free flowing powders etc.
- Microprocessor weigh controller used for accurate weigh controlling along with load-cells and electromagnetic vibrator.
- Works on single phase power.
- No Compressor required.
- Filling range : 50 gms-1 kg, 1kg-5 kg.
- Twin head, multihead versions can be catered.
- Virtually maintenance free.

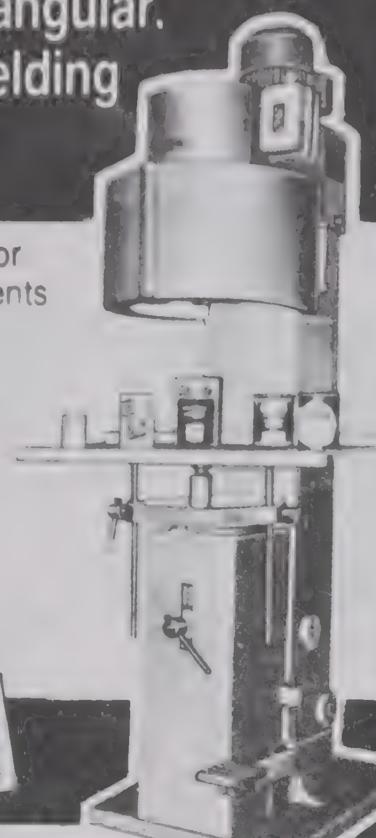
KAIZEN ENTERPRISES
A-5,Trupti, G.V. Scheme Road # 4,
Mulund (E), Mumbai : 400 081, (INDIA).
TeleFax : 564 6873, e-mail : kaizen@zeenext.com

BAKERY & ENZYMES & EMULISIFIERS
BETA CYCLODEXTRIN
CASEIN & CASEINATES
FLOUR MILLING ENZYMES
HYDROXY PROPYLATED STARCH
INULIN & FRUCTO-OLIGOSACCHARIDES
LACTIC ACID
NATURAL MILK CALCIUM
PRE-GEL & MODIFIED STARCHES
SORBITOL POWDER
WHEY PROTEIN CONCENTRATE
XYLITOL - MALTITOL

XANTHAN GUM

S. A. PharmaChem Pvt. Ltd.
220, Udyog Bhavan, Sonawala Road, Goregaon (East), Mumbai 400 063
Tel: 876 4700 ● Fax: 91-22-876 9532
Email: sac@sachemicals.com
Website: http://www.sachemicals.com

FRUCTOSE



For complete range of Tin Containers Making Machinery for Round, Rectangular. Oval Shapes, Welding or Solder Type.

Also Seaming Machine for packing liquids, dry contents and pesticides

For Canning Industries

- SEMI AUTOMATIC SEAMING MACHINES
- CAN REFORMING MACHINES
- CAN FLANGING MACHINES POWER/HAND OPERATED

EXPORT ENQUIRIES SOLICITED

Manufacturers :-

Ganga Singh Engg. Pvt. Ltd.

1, Vishal Ind. Estate, Village Rd., Bhandup (W), Mumbai 400078
Tel: 5600562, 5690572 (R): 5645287 • Fax: 0091-22-5649312
Email: ganga@bom4.vsnl.net.in • URL: http://www.gangaengg.com

EXCELLENT QUALITY GROOVE AND FLAT RUBBER STEREOS FOR ALL KIND OF PACKAGING PRODUCTS BY :

GARUDA

B.NO.
MFG. DT.APR.99
EXP. DT. MAY 2005
R.P.RS. : 25-55 L.T.E.

GROOVE

FREE INFUSION SET WITH THIS BOTTLE

FLAT

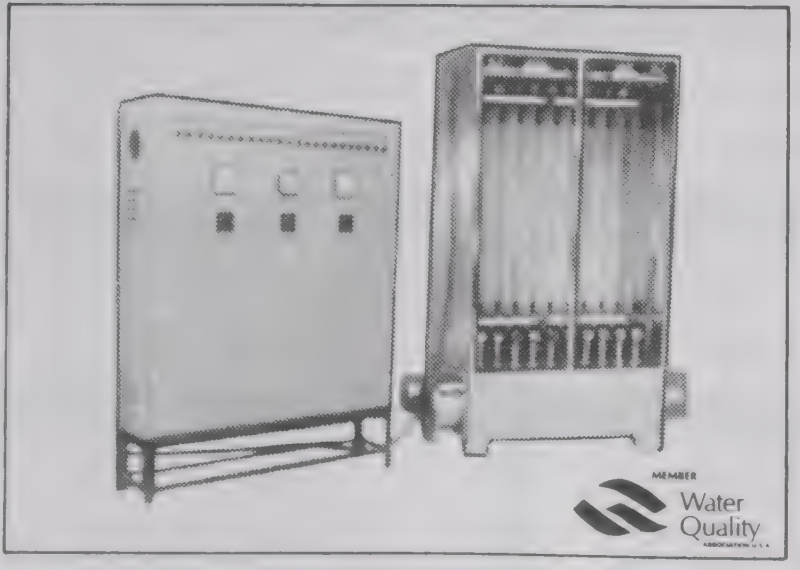
USED BY :
PHARMACEUTICALS, FOODS, PESTICIDES, AGRO, COSMETICS, DISTILLERIES, BEWERAGES, CHEMICALS & PACKAGING INDUSTRIES ETC.

AND ALSO AVAILABLE ALL PHARMACEUTICALS MACHINERIES

- ✦ FULLY AUTOMATIC HIGH SPEED LABEL & CARTON CODING M/C. (TWO IN ONE)
- ✦ BLISTER & STRIP PACKING M/C.
- ✦ POUCH PACKING M/C. (FOR LIQUID/POWDER & GRANULES FILLING AVAILABLE)
- ✦ AMPOULE/VIAL/BOTTLE FILLING & SEALING M/C.
- ✦ AMPOULE/VIAL/BOTTLE WASHING & DRYING M/C.
- ✦ AUTOMATIC/SEMI AUTOMATIC LIQUID FILLING M/C.
- ✦ AUTOMATIC/SEMI AUTOMATIC CAP SEALING M/C.
- ✦ STICKER LABELLING M/C.
- ✦ SEMI AUTOMATIC LABELLING M/C.
- ✦ FILTER PRESS

CONTACT : WORKS : 5890193

GARUDA ENGINEERS
RUDRAX-II, SHED NO.3, G.I.D.C. PHASE III, VATVA,
OPP. ANNAPURNA RESTAURANT, AHMEDABAD-382 445.
FAX. (079) 2165739 PAGER : 9628702754



ADVANCED IN UV TECHNOLOGY

Using non Fouling Teflon® Tubes UV units for water and waste water treatment over come scale problems. Also eliminate the need of wiper a major maintenance problem.

APPLICATION :

Disinfection of drinking/Process water, pretreatment before R.O., algae and slime control, purer fermentation products, Supply of high purity water for electronics, beverage, bottling brewing, Pharmaceuticals, Cosmetics and food processing. UV with an oxidant for TOC reduction. Disinfection of Secondary effluent etc.

Available in the range of 225 LPH to 12 lakh LPH

Hitech Ultraviolet Pvt. Ltd.
P.O. Box. No. 8356, 35 Grace Plaza, S. V. Road, Jogeshwari (W),
Mumbai-400 102. Tel. : 679 0610, 679 4327, 679 4611,
Fax : 91-22-679 4337, E-mail : hitechuv@bom5.vsnl.net.in

Innovative Solutions Today
For Tomorrow's Environment.

INDIAN NEWS & NOTES

GOVT. MEETING TO FINALISE THE DRAFT NOTIFICATION ON ALCOHOLIC BEVERAGES

Ministry of Health had released a draft notification G.S.R. 761 (E) dated September 29, 2000. This notification proposed that any package containing alcoholic beverages shall bear a label specifying that it contains... percent of ethyl alcohol by volume at 15/15°C. It also gave the specifications of Honey, Gin, Vodka, Whisky, Country Spirits, Brandies, Rum, Table Wines and Non Alcoholic Beer. To finalize these draft specifications Ministry of Health had called a meeting of the expert group of CIFTI members. Members of CIFTI felt that as is done in case of mineral water and few other products, BIS (Bureau of Indian standards) may formulate the standards for alcoholic beverages and PFA can adopt these standards.

Since BIS is still in the process of formulating Indian standards for alcoholic beverage products, it was recommend that the Health Ministry may wait till BIS standards are formulated. Further, Health Ministry under PFA may restrict itself to fixing the maximum limits for only those parameters, which have safety concerns like Methl Alcohol 50 gm, Pyridene 0.1 gm, Furfural 15 gm and Aldehydes 75 gm.

HIMACHAL PRADESH PLANS BIOTECH PARK

The Himachal Pradesh Government is planning to give a fillip to the biotech segment and proposes to set up a biotechnology park at Waknaghat. While the park will be the main centre for procurement of raw material for biotech industries, the policy outlines that sub-centres may be established at other locations in the state, which also had the potential to supply raw materials. Three areas identified for sub-centres include: Manali, Solan and Chamba and their adjoining areas.

The state has also formulated an ambitious plan to bring an additional 2000 hectare area under organic tea farming by inviting investment of Rs 130 crore through corporate plantation in Chamba. Himachal Pradesh has been declared an agriculture export zone in the exim policy and a target of 10 lack tonne off-seasonal vegetable production has been fixed by 2007.

SOYAPROTEIN REDUCES HEART DISEASE

Susan Potter, Chief of the Nutritional Science Division of US based Du Pont Protein Technologies stated at a Seminar held in Delhi that daily intake of 25 grams of soya protein may reduce the risk of heart disease. Work is underway to study the potential effects of soya on blood vessel elasticity and reduction of plaque formation. In 1999, the United States Federal Drug Administration had also approved the health claim that a daily intake of soya does reduce the low density level (LDL) cholesterol, thereby, lowering risks of heart attacks.

This will give a boost to the domestic soya producing and processing industry for promoting soya milk, soya flour and soya protein.

Potter said the bioactive components of soya protein such as saponins, isoflavones, phytic acids and protease inhibitors help in preventing development of artherosclerosis, promotion of healthy blood vessels, acting as anti-toxidants and calcium channel inhibitors, preventing blood clotting, anti-inflammatory agents and lowering blood pressure.

Clinical trials are currently underway to determine the role of soya protein in cancer prevention and management, since several components found in soya protein such as isoflavones, amino acids, trypsin inhibitors and saponins have demonstrated anticancer effects in animal and human cancer cells, she said.

NUTRACEUTICALS FACE IDENTITY CRISIS

Nutraceuticals or food supplements are faced with an identity crisis regarding their categorisation, following a Health Ministry notification that seeks to make it mandatory to label food items as non-vegetarian or vegetarian. The ensuing lack of clarity puts a shadow over the labelling of food supplements, such as Parry's Spirulina and Natural Beta-carotene and Sunova's Spirulina that are becoming increasingly popular in the market place.

The Health Ministry observes that "In some markets it is a drug, while in the developed markets of the West, it is neither food nor drug. It is in the third category that is generally self-regulated. In India, the possible guideline on labelling for the nutraceutical companies could depend on where they got their license from. If they take a licence from the food departments then it would come under the purview of the PFA. But if it was from the chemicals and fertiliser department, the nutraceutical company would not have to worry about the labelling."

The 'natural health foods' market in the country is estimated to be around Rs 3,000 crore, growing at 14 percent per annum. Globally, the nutraceutical market is around $400 billion, of which $50 billion is from natural supplements.

Would You Like To Ensure Microbial Reduction In Your Process Water?

If Yes Contact ALFA™
WATER PURIFIERS
The UV Professionals™

- 12 YEARS' EXPERIENCE
- 200 LPH TO 1 LAKH LPH
- ONLINE FAIL SAFE VALIDATION
- MEETS EEC/HASSOP/HACCP NORMS
- DEPENDABLE AFTER SALES SERVICE

Some Alfa Customers...
Castle Rock, Indiana Dairy, Kwality Biscuits, MTR Foods, Nalk Sea Foods, Onjus, Orient Veg, Parle Products, Pepsi, United Breweries, Pro...And Many More

Ace Hygiene Products Pvt. Ltd.,
222, Shah & Nahar (A2), Lower Parel, Mumbai - 13.
Tel. : (022) 494 5957 / 495 4190
Fax : (022) 495 4250
Visit us at : www.alfauv.com E-mail : ho@alfa-india.com

Member
WATER QUALITY ASSOCIATION

MANDATORY CERTIFICATION FOR ORGANIC FARM PRODUCTS

In a bid to keep a check on the export quality of organic agricultural products, the government has imposed mandatory certification on such products by accredited agencies. The Directorate General of Foreign Trade in the guidelines issued by them mentions that the certification agencies would in turn require accreditation from the Agricultural and Processed Food Products Export Development Authority (APEDA), the Spices Board, the Tea Board and the Coffee Board. Natural pesticides like neem, leaves, manures and other natural soil nourishment techniques would be classified as organic products.

KESAR MANGO SET TO GO GLOBAL

The possibility of 'kesar mango' being exported has increased with the despatch of a 11 tonne export quality consignment. Under a project promoted by the Mango Growers' Association (MGA) of Aurangabad, 25 farmers are constantly experimenting and improving the standards for the past five years with technical support and subsidies from the Agricultural and Processed Food Export Development Authority (Apeda), the Maharashtra State Agriculture Marketing Board (MSAMB) and the Marathwada Agricultural University at Parbhani.

GOVERNMENT PLANS LITCHI RESEARCH CENTRE

With a view to promoting litchi research and production in the country, the Government is setting up a National Research Centre at Muzaffarpur in Bihar.

CENTRE FOR MEAT TECHNOLOGY IN KERALA

The Kerala Agricultural University (KAU) has been awarded a Rs. 2.14 crore mega project for setting up a world-class centre of excellence in Meat Technology (CEMT) in the next two years.

It will be fully funded by the Indian Council of Agricultural Research (ICAR) and would be established at KAU's main campus at Mannuthy, near Trichur, as a top level research and training centre in meat and meat products development and its trade and export. CEMT would undertake problem-oriented research and quality management programme for production, processing and human resource development in the meat sector. It would also conduct appropriate training programmes for different segments of the meat industry.

NEW TECHNOLOGY TO DELAY FRUIT RIPENING

Scientists have isolated a gene part, called *promoter*, from tomato plant and hope to use it in a modified form for delaying fruit ripening by a technology that can be extended to several other perishable fruits and vegetables. The country does not have proper cold storage and refrigerated transport facilities, which causes wastage of almost twenty percent of all perishable fruit and vegetables due to rotting.

MILK OUTPUT RISING

India has an efficient dairy sector. Despite the small scale of enterprises, the efficiency of milk production, especially in terms of production costs, compares well with international standards. The milk processing sector is even more efficient. The country has emerged as the world's largest milk producer. Still it is an insignificant player in the international market for milk and milk products.

The country's milk output has been growing at a healthy 4.5 percent since the early 1970s, largely due to Operation Flood and the related events in its wake. Indications are that it will rise further. But an export outlet will be essential to sustain that kind of high growth. It will have to adopt a proactive posture in the WTO's renegotiations on the agreement on agriculture for universal reduction in subsidies. At the domestic level, the cost of milk production will have to be brought down further by improving the productivity of dairy animals.

The quality and hygiene aspects of milk and milk products will have to conform to the globally-accepted Codex Alimentarius Commission standards. The market for buffalo milkbased value-added products is almost unexplored at present. Since India excels in the buffalo milk sector, this aspect merits urgent attention.

Improvement in animal productivity can be ensured by extending the kind of breeding, health care and related facilities available in the Operation Flood areas to other regions as well. Fodder and feed supplies need to be augmented. The pasture lands are generally in a bad shape. A policy is needed to restore their vegetative cover by planting more nutritious species of grasses and shrubs. Research and development effort is needed to evolve better dairy management practices and cheaper, yet nutritious, concentrate rations for milch animals.

The infrastructure for collection of milk, its preliminary chilling and processing at the village level, cold stores and refrigerated transportation needs to be modernised and augmented to ensure hygienic handling of milk and its products.

Operation Flood has already taught us how it can be done. What is needed is the action.

TRAINING PROGRAMME ON TESTING OF SYNTHETIC FOOD COLOURS

A training programme on 'Testing of Synthetic Food Colour Preparations and Mixtures' as per IS 5346:1994, was organized in the laboratory of the Western Regional Office of the Bureau of Indian Standards (BIS), Chemical Section on 16 March 2001.

The programme was inaugurated by Director and Head, WRO Laboratory. Subsequently practical demonstration of various tests like identification of dyes, estimation of total dye content, water insoluble matter, lead, arsenic and heavy metals as per IS 5346:1994 was given to all the participants. The estimation of lead content was also demonstrated by Atomic Absorption Spectrophotometric technique following digestion of sample using microwave digestion. Estimation of total dye content in different types of mixtures using direct spectrophotometric technique, paper chromatographic technique and a combination of the two techniques were demonstrated, in which participants showed keen interest.

During the training programme importance of various quality assurance measures, like calibration of equipment – balance, oven, glassware, thermometer, etc.; use of proper quality of chemicals, filter paper and distilled water, proper maintenance of raw and other data concerning testing were also explained to the participants. Many of the problems faced by them with respect to testing and the various factors responsible for causing variation in test results were also discussed with the participants.

NEW FOOD PROCESSING POLICY SOON

The Cabinet is likely to clear the national food processing policy soon, however, it will only be implemented once the Processed Food Development Act is passed.

The policy, which aims at increasing investment in the food processing sector and reducing gap between the farm gate and retail price has been placed before the Cabinet along with the Act.

Official sources say that the policy had been divided into three parts emphasizing on the short, medium and long term benefits.

"In the short-term, the policy aims at rationalisation of the tax structure, inducing foreign and domestic investment, harmonisation and simplification of various food laws in different ministries such as agriculture, food processing and health, generic promotion to boost marketing, strengthening the concept of anchor industry and extension services and special provision for the north-eastern region, hilly areas and islands," Omesh Saigal, chairman of the task force on food processing said.

The Centre has already rationalised the tax structure by announcing a tax holiday for industries involved in processing of fruits and vegetables.

The medium-term features aim at setting up of cold chain, application of technologies, infrastructure for food safety, product specific packaging, development and transfer of new technologies and multi-product clusters.

A sustained and lasting relationship between the farmer and the processor and between the processor and the market, futures trading and a good marketing network are some of the salient features of the long term.

"The policy also talks about the development of an equalisation fund wherein the government would fix up a certain price for fruits and vegetables taking a longterm medium and the industry would source the commodities at that price," Saigal said.

In case, the price of a commodity for a year falls below the fixed price, the industry would have to buy it at the fixed price only, and vice-versa, he added.

DARJEELING TEA FACES COMPETITION FROM NEPAL

India can no longer pride itself on being the sole producer of the champagne of teas – the Darjeeling variety. Drinkers across the globe have discovered an identical aroma and light golden liquor of another origin. Already battling stagnant production and falling prices, the Darjeeling planters are now facing direct competition from Nepal.

The policy of the Himalayan kingdom is,productivity improvement campaign and growing tea in new areas will boost production to more than 46 million kg by the end of the decade from less than 8 million kg now.

The tea would not be sold as "Darjeeling tea". Due to cheaper prices, many of India's conservative buyers have shifted to Sri Lanka to source the beverage.

Unlike other tea regions in India, Darjeeling produces only the orthodox variety and the tea produced during the season's first two flushes is almost all sold in the world market at fancy prices.

Industry sources say that a large portion of the Nepalese tea leaves plucked at the gardens in Ilam are processed by Darjeeling planters and brought to their factories through the open border.

Not only are the leaves from Nepal processed across the border and then sold as Darjeeling tea, the ready orthodox tea is sometimes blended with the latter to improve its flavour," the sources added.

Germany and Japan, the two most important destinations for Darjeeling tea, have lately discovered that some orthodox tea can be sourced from Nepal at attractive rates.

Nepal exports more than 95 percent of its orthodox production of about 700,000 kg, while annual output of 7 million kg of CTC tea falls short of domestic requirements, which are met by imports.

The country has been growing tea for nearly a century and a half but much of the industry is too young. For many years, the Nepalese planters sourced clones from gardens and nurseries in Darjeeling.

SLUMP IN THE FRUIT MARKET

The overall sales of all fruits are down by at least 25 percent this year because the demand remains depressed. Wholesalers, who earlier sold 50 boxes of fruit a day, are now down to not more than 30 boxes.

The metros are especially hit because of the cutback in spending on fruits, which continue to be perceived as extra in the daily diet. The import of fruits has virtually come to a standstill as poor demand, coupled with high duties, have made India an unviable market.

The demand for imported kiwis, which is usually quite a popular fruit, has dropped 40 percent this year due to high costs.

Import of the really expensive fruit like mangosteins from Bangkok and Singapore has been limited. Only the cheaper Indian fruits like bananas and mangoes had a good season this year, because the bumper crop made them very affordable," sources said.

The growers are unlikely to be hit very hard by this drop in demand as fruits like grapes, oranges, litchis, and apples are unlikely to reap a bumper crop this year. Interestingly, the biggest success story in the fruit sector today appears to be apples. Farmers have realised that consumer will pay for quality and packaging. "Though they faced tough competition from imported apples over the last two years, both farmers and wholesalers realised that Indian consumers are willing to pay as much as Rs 100/Kg if the fruit is crunchy, juicy and packaged attractively.

As a result, this year, a percentage of the local crop has been well sorted, labelled with stickers and neatly packaged for the retailing in the local market.

When consumers are now being offered almost the same quality of apples for anything between Rs 60-70/Kg, they are no longer interested in the imported fruit at Rs 100.

PREVENTION OF BROWNING

Scientists at the Indian Agricultural Research Institute (IARI) New Delhi have developed a new formulation that prevents undesirable browning in apples, potatoes and mushrooms. The IARI formulation that combines ascorbic acid (present in vitamin C), 4-hexylresorcinol (HR) and banana leaf extract was found to inhibit browning even better than the normally used sulphites. The colour and texture of the treated samples were closer to fresh samples. According to the team, replacing banana leaf extract with HR or with a combination of HR and ascorbic acid significantly inhibited browning intensity by 60-65 percent. The rate of browning during storage is influenced by the length of time the produce is immersed in the treatment solutions.

AGRO MINISTRY WILL WORK CLOSELY WITH FOOD PROCESSING MINISTRY

Development of agro industries will be jointly taken up by the ministry of agro and rural industries and the ministry of food processing, said the new union minister for agro and rural industries, Karia Munda.

The minister said that the specific areas of operation and issues will be sorted out through inter-ministerial co-ordination and discussions not only for these two, but also with the Union ministry of rural development.

ECONOMIC SLOWDOWN AFFECTS CASHEW PRODUCTS

According to experts at the Cashew Export Promotion Council of India (CEPCI), the big reduction in the global price realisation is the major reason for setback on the exports front.

Due to the economic slow down worldover, the consumption of cashew-based products has dropped. Tough competition from countries like Brazil and Vietnam has also affected the cashew exports in the current year.

INDIAN GHERKINS FACE STIFF GLOBAL COMPETITION

Globally all countries importing gherkins from India are now growing it. Yet it is business and a lucrative one for India. India can still boost its exports over the new few years.

The global consumption of this tasty pickle is about 2.5 million tonnes per annum mainly in North America, Europe and Australia. India specialises in the labour intensive small gherkins, 70 percent of which is exported to France, 20 percent to Canada and less than one percent to USA. There are two main kinds of gherkins exporter:

First, the bulk commodity sector who preserve the vegetable in brine and export in HDPE drums. These need further processing into consumer packs such as jars or cans.

Second, the finished product exporters who preserve the product in vinegar flavoured with dill, oregano or thyme in consumer packs for departmental stores and food service companies. Almost 99 percent of gherkins are preserved whole in vinegar or brine while only one percent is chopped up and used as relish.

INTERNATIONAL NEWS

COPPER KEEPS THE FOOD BUGS AWAY

The use of copper surfaces for food preparation in factories, shops, hospitals, restaurants and the home could help reduce the risk of infection by potentially fatal food bugs.

Scientists at the University of Southampton are part of an international research effort to develop the bacteria-killing properties of copper, a metal first used by the ancient Egyptians to keep water fresh.

The University team is led by Professor Bill Keevil, who has already shown that E. Coli 0157 can survive for months on stainless steel, the work surface used in most commercial kitchens.

At the chill temperature typically used for food storage (3-4 degrees Celsius) the bug, traced to thousands of cases of virulent food poisoning worldwide, survived for more than 35 days, and sometimes for as long as three months. There were no surviving organisms on brass after 12 days or on copper after 14 hours.

At room temperature of 20 degrees Celsius, the bacteria survived on stainless steel for 34 days, on brass for four days and on copper for just four hours.

Professor Keevil said: "Stainless steel is used throughout the world because of its perceived hygienic properties. It always looks like a nice, clean and bright surface."

"But a closer look reveals scratches and marks which, on a microscopic scale, are more like valleys. It is very easy for pathogens to get into these crevices and rubbing a cloth or brush across the surface may not be sufficient to get them out. Unless a good disinfectant is used to get to the bottom of the valley, you can't kill them off," he added.

It is recognised that cross-contamination in food preparation is a major problem. In 1997, an outbreak of E. Coli 0157 in Scotland made 500 people ill and killed 20.

The New York-based International Copper Association is now working with the University looking at whether copper is as effective in killing newly emerging strains of the bug.

Professor Keevil added: "The research we have already done has shown that E. coli 0157 is a very robust pathogen and that very rigorous cleaning techniques are needed to try and keep it out of the food chain."

POMEGRANATE SEED MAY CAUSE BREAST CANCER CELLS TO SELF-DESTRUCT

Israeli researchers have found that pomegranates could have important implications for breast cancer treatment and the safety of oestrogen replacement therapy.

Technion-Israel Institute of Technology found that pomegranate seed oil triggers apoptosis, a self-destructing mechanism, in breast cancer cells. In addition, pomegranate juice can be toxic to most oestrogen-dependent breast cancer cells, while leaving normal breast cells largely unaffected.

Oestrogen is a hormone prescribed to protect postmenopausal women against heart disease and osteoporosis.

"Pomegranates seem to replace the oestrogen often prescribed to protect postmenopausal women against heart disease and osteoporosis, while selectively destroying oestrogen-dependent cancer cells," explains Dr. Ephraim Lansky, who headed the studies.

In the first study, laboratory-grown breast cancer cells were treated for three days with pomegranate seed oil. The researchers observed apoptosis in 37 to 56 percent of the cancer cells, depending on the dose of oil applied.

In the second study, both normal and cancerous breast cells were exposed to pomegranate wine and pomegranate peel extracts, which contain polyphenols. The vast majority of the normal cells remained unaffected by the two pomegranate derivatives. But more than 75 percent of the oestrogen-dependant cancer cells, and approximately half of the non-oestrogen dependent cancer cells were destroyed by exposure to these same pomegranate products.

Dr. Martin Goldman, a New York-based board certified internist and life medicine specialist, notes, "this is apparently a safe substance that could be helpful to many people, especially women at high-risk for developing breast cancer."

According to Dr. Lajos Pusztai, an assistant professor who studies breast cancer at the M.D. Anderson Cancer Centre in Houston, Dr. Lansky's study "provides a potential new avenue to develop anti-cancer drugs from a natural compound."

Technion researchers have tested other health benefits of pomegranates, showing their antioxidant potency and ability to lower oxidatant of LDL cholesterol, leading to the elimination of plaques in arteries.

SALE OF ETHNIC FOOD ON RISE IN US

Supermarkets in the US are being transformed into global food centers, stocking items such as Japanese soba noodles alongside Italian pasta and South Asian basmati rice next to white rice brands to keep up with changing American palates. Scrambling to join the ethnic food craze, supermarkets are looking to become one-stop shops for consumers now accustomed to visiting various speciality stores to buy non-traditional ingredients.

Awareness of spicier fare such as Thai, Vietnamese and Indian foods has grown eight percentage points between '94 and '99.

Kraft foods, the largest North American food maker, now sells four varieties of "Mexican" shredded cheese. Hain Celestial Group's Celestial Seasonings brand has expanded tea offerings to include green, chai, and even a South American inspired Mate tea.

Equatorial foods such as plantains and herbs such as cilantro are plentiful in produce sections, and Thai sauces and seasonings have found a niche beside other Asian based sauces.

NEW HEALTHY MILK ALTERNATIVE

The first chilled alternative to milk with real health benefits, has already had a massive impact on the UK market. "So Good" launched in January 2001 is soon to be packaged in 750 ml Pure-Pak® cartons with screwcap.

The new chilled So Good is based on soya protein, enriched with vitamins and calcium and is the first milk alternative to offer consumers three major health benefits over and above normal milk supported by over 100 published scientific studies. These studies claim that So Good actively lowers LDL (bad) cholesterol by 13%, helps build stronger bones and maintains a healthy heart.

So compelling is the scientific evidence in support of the So Good benefits, that the US FDA (Food and Drug Administration) last year permitted a health claim, that states, "25 grams of soya protein a day as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease.

RED WINE

Recently a comparative study was undertaken between wine drinkers and beer and liquor consumers in Copenhagon. It was found that former had generally healthier habits and psyches, and were less likely to abuse alcohol. Wine drinkers also tended to have a higher socioeconomic status and score higher on intelligence tests than beer or liquor drinkers, which the study speculated had ramifications for physical health.

Previous studies have shown that light to moderate red wine consumption relieves stress and improves blood circulation, both deterrents to heart disease, and is linked to good self-perceived health. Ingredients in red wine are also believed to lower the risk of several health problems, including stroke, upper digestive tract cancer, lung cancer and hip fracture.

Overall mortality rates among wine drinkers are lower than for those who drink beer or alcohol or for those who abstain, according to previous research.

COKE VS WINE

Britain favourite grocery product is still soft drink Coca-Cola, but wine is the fastest growing sector thanks to the popularity of New World wines, market researcher AC, Nielsen reported.

Coke showed retail sales growth in Britain for the year ended April '01 of 5.1 percent of 665m-670m pounds ($943m-$950m), topping a league table which shows no change in the top four grocery items from the previous year.

But British shoppers are filling their baskets with more wine than ever before. Four New World wine brands are now in the top 20 fastest – growing brands, namely BRL Hardy Banrock Station and Hardy's Stamps, Diageo Plc's Blossom Hill and Southcorp Lindemans.

GM TOMATO DEVELOPED BY SCIENTISTS

German scientists have developed a genetically modified tomato which they say is environmentally friendly and could be used to deliver vacines and antibodies.

The tomato has been engineered in such a way that it will not pass on its genes to other crops – something that is a concern in most genetically modified GM crops.

Its creators also believe the new technology could be used to develop fruit and vegetables that could help immunise against certain diseases.

Mr Bock developed the plant with a team at the Institute of plant Biochemistry and Biotechnology in Munster. Using a new technology, the scientists inserted a foreign gene into the chloroplast of the plant cell instead of into the nuclear DNA orgenome, the conventional way of genetically altering plants.

Much of the fear surrouding GM crops is the danger they pose to non-GM crops. Inserting the foreign gene in the chloroplast also allows scientists to produce more proteins in the plants.

WHITE WINE OFFERS BENEFITS SIMILAR TO RED WINE

In Israel, researchers report to have developed a process that enhances the antioxidant content of white wine, thus making it as beneficial as red wine. The team obtained whole squeezed grapes and incubated them for up to 18 hours in the presence of alcohol before removing the skins. This resulted in a significant increase of white wine polyphenols, up to six times the normal level, and exhibited antioxidant activity similar to that of red wine. Moreover, though the polyphenol content of white wine produced for the study was about 25 percent that found in red wine, comparative antioxidant activities indicate the presence of polyphenols that exhibit higher antioxidant activity.

Apart from being a health enhancer, the new wine is also promising for those who cannot drink red wine – e.g. some migraine sufferers whose condition can be exacerbated. The new beverage has the same taste, colour and aroma of regular white wine. Contact: Prof. Michael Aviram, Technion-Israel Institute of Technology, Haifa, Israel.

CINNAMON KILLS BACTERIA IN APPLE JUICE

A new study has revealed that adding a pinch of cinnamon reduces bacterial growth in apple juice. According to researchers at Kansas State University, the United States, cinnamon provides added protection and pleasant taste to pasteurized apple juice. During the study, cinnamon was added to commercially pasteurized apple juice that had been tainted with one of three common foodborne pathogens – Salmonella typhimurium, yersinia enterocolitica or Staphylococcus aureus. Over a period of 1-7 days, researchers found reduced levels of bacteria in samples containing cinnamon.

Researchers recommend heating of meat to 71°C and pasteurization of apple juice for food safety, but also suggest the use of spices to provide tasty food as well as added advantage in controlling possible chance contamination of foodborne pathogens. Cinnamon has previously been shown to suppress the growth of E. Coli in apple juice and uncooked ground beef.

GLOBAL MILK OUTPUT TO RISE BY 2%

International trade in dairy products is expected to remain steady in 2001 despite the outbreak of foot-and-mouth disease among livestocks in several countries. There might be shortage of some dairy items, notably milk powder, causing strengthening of prices during the second half of the year.

The global production of milk is projected to rise by about two percent this year to touch the 585 million tonne mark. Indian milk output will scale a new high of 81 million tonne, according to the projections released by the United Nation's Food and Agriculture Organisation (FAO).

Several countries had imposed bans on import of dairy products due to the outbreak of foot and mouth disease. But the realisation that most dairy products are heated to a temperature that eliminates any trace of the disease has made them reconsider their decisions.

The price outlook for dairy products in the second half of 2001 is uncertain. This is due to lower milk output in countries like New Zealand, Australia and Argentina which in turn will create shortage of milk powder supply in world markets. Cheese and casein prices are expected to remain stable in 2001 because supply and demand are less volatile. Global butter prices are also projected to remain around current levels due to the absence of strong demand.

Milk powder purchases by most countries in south-east Asia are expected to rise in 2001 as economic growth in this region will sustain high import demand. Besides, higher revenues from oil in countries of the Middle East, North Africa and Venezuela, could lead to a growth in their demand for dairy products leading to higher imports. Central American countries are also expected to import more milk products this year.

CHOCOLATE FOR HEALTHY HEARTS

American researchers have good news for chocoholics. The treat favoured by millions not only tastes delicious but is also healthy. Chocolate contains compounds called flavonoids that can help maintain a healthy heart and good circulation and reduce blood clotting — which can cause heart attacks and stroke. "More and more, evidence is found that consumption of chocolate that is rich in flavonoids can have positive cardiovascular effects," Carl Keen, a nutritionist at the University of California said at a science conference.

TEA REDUCES HEART ATTACK

The Saitama Cancer Research Institute in Japan concluded that women with a history of breast cancer who drank 5 cups of tea daily were 50 percent less likely to have a recurrence than women who drink none or less than 5 daily cups. Catechins, an antioxidant that's abundant in tea, has proven to lower cholesterol, lower blood pressure, inhibits blood sugar increases and kills bacteria and the influenza virus. Green and black tea are packed with antioxidants to help prevent cell damage that leads to cancer.

JUST RELEASED !

4TH EDITION

PROCESSED FOODS & BEVERAGES DIRECTORY

Thousands of Indian Firms listed in over 760 BIG Pages, and 6 Sections:

1) Processed Foods & Beverages Manufacturers/Suppliers.
2) Raw Materials, Ingredients & Additives Manufacturers/Suppliers.
3) Food Processing / Packaging Machinery & Ancillaries Manufacturers / Suppliers.
4) Exporters of Processed Foods & Beverages, Additives & Ingredients, etc.
5) Importers of Processed Foods & Beverages, Additives & Ingredients, etc.
6) Associations, Research Institutes, Colleges, Export Promotion Councils, Boards, etc.

PRICE: India: Rs. 700 (inclusive of Packaging & Postage)
Overseas by Airmail: US $ 50

Rush Bank Draft to favour "The Amalgamated Press, Mumbai".

PUBLISHERS :

THE AMALGAMATED PRESS
Narang House, 2nd. Floor, 41, Ambalal Doshi Marg, Fort, Mumbai 400 001
Tel: 2650268 / 2654184 • Fax: 91-22-264 1275
Email: dasilva@vsnl.com

EXPORT HIGHLIGHTS

MANGO

Exports of mango are likely to rise to 48,000-50,000 tonne this year before the season ends. Mango exports for the last two years have averaged between 30,000 and 35,000 tonne. Mangoes from India are exported traditionally to the Gulf, with a small percent going to Europe. This year Indian mangoes will also find their way to southeast Asian Countries such as Malaysia and Singapore.

SPICES

The economy slowdown seems to be affecting even spices exports. Exports of spices and spice products from the country stood at Rs 406.07 crore in the first quarter of the current year, recording a 12 percent decline over the export of Rs 460.02 crore in the same period of the previous year.

The total quantity of exports stood at Rs 2.3 lakh tonnes. Exports of chilli, turmeric, coriander, celery, fennel, fenugreek, garlic and pepper have registered a fall both in terms of quantity and value.

The value of Cardamom exports increased from Rs 8.26 crore to Rs 10.91 crore. At the same time, the quantity of exports increased from 149 tonnes of 190 tonnes.

Apart from small cardamom, the export of ginger, cumin and other seed spices like aniseed, ajwain seed, mint oil, spice oils and oleoresin are the products that registered an increase. Export of oleoresin and other oils increased from Rs 89.43 crore to Rs 95.77 crore.

RICE

The export of non-basmati rice has gained momentum with traders booking orders of nearly five lakh tonne.

If the international prices continue to remain favourable, exporters say, the country is likely to meet the export target of three million tonne during the current year (April 2001-March 2002).

Indian rice is selling at a price range of $ 175-210 per tonne in the international market.

While five percent broken rice is selling between $190 and $210 per tonne, the 25 percent broken variety is being priced between $170 and $190 per tonne. The Food Corporation of India is selling raw rice at Rs. 5,659 per tonne and parboiled rice at Rs. 6,000 per tonne to traders for export.

MILK POWDER

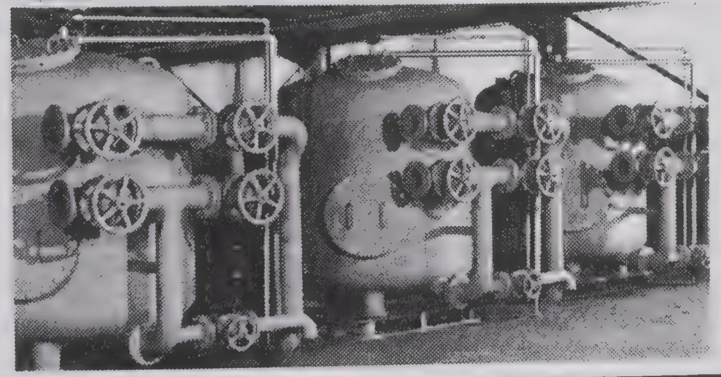
The foot and mouth disease (FMD) outbreak in Europe has improved the prospects for export of skimmed milk powder (SMP) from the country. SMP exports are set to cross a record 15,000 tonnes in 2001-02.

Currently, SMP (1.25 percent butterfat content) of European origin is quoting at $2,050-2,100 per tonne (f.o.b), while that from Oceania (New Zealand and Australia) is being offered at $2,025-2,250 per tonne. Compared to this, international SMP prices were ruling at $1,550-1,650 per tonne f.o.b. during this time last year.

From being a massive importer, the country ended up being a net exporter during 2000–01. Wholesale SMP prices are now ruling at Rs 74-75 per kg. The country exported an estimated 5,000 tonnes of SMP last year.

TALK TO THE SPECIALIST

AQUA FILSEP; INC.
THE WATER TREATMENT PROFESSIONALS



R.O. Plant, D.M. Plants, Mineral Water Plants, Softening Plants, Swimming Pool Plants, Product Recovery Systems, Domestic Mineral Water Plants.

Aquafine (U.S.A) Osmonics Desal (U.S.A)

Customised Solution Personalised Service

Mumbai: 7, Retiwala Industrial Estate, H.A. Palav Marg, Byculla (E), Mumbai 400 027. Tel: (0) 3719455 (R) Telefax: 4465521 • Fax: 91-22-4465521 • Email: filsep@vsnl.com • Website: http://www.com
Ahmedabad: A1/1, Chinubhai Tower, Above 1.O.B, Opp. Handloom House, Ashram Road, Ahmedabad 380009. Tel: 91-79-6580047, 6584069 • Fax: 91-79-6584069 • Email: filsep@ad1.vsnl.net.in • Website: www.aquafilsep.com

FLAVOURS OF THE NEW MILLENNIUM

NOVA FLAVOURS & FRAGRANCES (P) LTD.

Head Office:

301, Sterling Estate, 3rd Floor, Plot No. 8,
Inside Spectra Motor Compound, Ramchandra Lane
Extension, Kachpada, Malad (W), Mumbai 400 064.
Tel: 8446405 / 8446481 / Telefax: 8812059
Email: hopl@bom5.vsnl.net.in

Manufactures of:

LIQUID FLAVOURS
EMULSIONS & PASTES
CULINARY ESSENCES
POWDER FLAVOURS
ESSENTIAL OILS

Recommended for the following End Use:

Aerated and Non-aerated Soft Drinks, Biscuits, Hard Boiled Confectionery, Dairy, Cakes, Snacks & Savouries, Ice Lollies, Oral Hygiene Chewing Gums, Pharmaceuticals, Tobacco and Health Beverages.

BOOK REVIEW

A Practical guide for Implementation of Integrated ISO 9001 HACCP, System for Food Processing Industry, by Sohrab, M. Sc., Published by Allied Publishers, Post Box 7203, 1/13-14, Asaf Alif Road, New Delhi 110002, Tel: 011-4611087, Fax: 011-3235967, Email: aplnd@del2.vsnl.net.in / aplcmd@ndf.vsnl.net.in, Pages 360, Price Rs 540.

The book "A Practical Guide for Implementation of IntegratedISO 9001 HACCP for the Food Processing Industry" is the first of its kind and is expected to fill a long felt need of the Food Industry in providing practical guidance for implementation of HACCP system-stand alone as well as in conjunction with ISO 9001.

The book provides comprehensive coverage right from basic concepts ofISO 9000 and HACCP system, implication on international trade, establishing pre requisite programme which is the basic foundation of HACCP risk analysis, development, installation and monitoring of ISO 9000 HACCP integrated system and audit and appraisal of the implemented system. It also covers allied areas such as sensory evaluation and environmental management system to the extent required to give a sound backing to the system.

The book includes workout quality manual and HACCP plan including details to translate it to varying work environments ranging from a small industry to large food industry.

Chapters – Evolution of Concept of Food Safety Management System, Need for food safety management (HACCP) Systems, HACCP and World Trade – role of sps and tbt Agreements, Understanding and Integration of HACCP and ISO 9001, ISO 9001 Quality Management System – the basic frame work for Implementation of HACCP, Prerequisites for Implementation of HACCP, Development and Installation of Integrated ISO 9000 – HACCP Systems, Risk Analysis a Prerequisite programme, Monitoring Mechanism for HACCP System, HACCP and Sensory Evaluation of Food, HACCP and Environmental Management Systems, Auditing an Integrated ISO 9000 and HACCP Systems.

The author Mr. Sohrab is the Chief Executive of Quality Care leading ISO 9000/ISO 14000 / QS 9000, HACCP and Total Management consultancy organization. He is also a registered lead Auditor with International Register of Certified Auditors. He is registered Quality Assurance Instructor and a Certified Quality Engineer with RwTuV Germany. United Nation appointed him in 1995 as Central Consultant for establishing status of adoption of ISO 9000 and ISO 14000 in the Economic and social commission for Asia and Pacific region. Also appointed as an International consultant in Quality control and Standardization with special reference to ISO 9000 and ISO 14000 for Industrial Technology Development study mission in Ghana. He was invited to participate in the seminar on the Uruguay Round WTO Agreements in Ghana. He has authorised three books 'ISO 9000 & Food Industry', 'Quality Audit', Mastering ISO 9000 requirements. He has numerous technical papers to his credit on ISO 9000 Quality systems certification systems, total quality management and standardization, published in National and International journals.

TOTAL QUALITY ASSURANCE for the Food Industries, 3rd Edition, Edited by Willbour A. Gould, Ph.D. and Ronald W. Gould, B.Sci Published by CTI Publications, Inc., 2 Oakway Road, Timonium, MD 21093-4247 USA, Fax: 410-308-2079, Email: sales@ctipubs.com, Website: www.ctipubs.com, Pages 500, Price $ 108.

The book covers industries like Snack Foods • Beverages • Canning • Dry Products • Glasspacking • Meat Packing • Prepared Foods • Frozen Foods • All other Food Operations

The book is in two parts, ***Part I chapters*** are devoted to fundamentals like * Introduction to Total Quality Assurance * Modern Concepts of Quality Assurance * Quality Control and the Use of CEDAC * Productivity and Total Quality Assurance * Sampling for Product Evaluation and Line Control * Statistical Quality and Process Control * Variable — Raw Materials and Ingredients / Machines / Methods / People Power * Food Plant Sanitation *Fundamentals of Research and Development * Communicating Quality and the Cost of Quality * Specifications and Quality Standards * Packaging and Container Integrity Evaluation.

Part II is devoted to Product evaluation like *Sugar, Salt and Seasonings * Flavor * Odor * Physical Evaluation of Color * Size, Shape, Symmetry & Style * Maturity/Character and Total Solids/Moisture * Texture — Tenderness, Crispness, Firmness * Rheology/Viscosity/Consistency * Defects — Imperfections of Appearance * Drosophila and Insect Control * Enzyme Activity * Alcohol in Foods and Beverage * Fats and Oils * Total Acidity and pH * Mold-Counting Methods and Principles * Water Activity * Records Data & Reports * Total Quality Assurance * Temperature Conversion Tables * Weights and Measures.

DICTIONARY OF FOOD INGREDIENTS 4th Edition, updated version. Edited by Robert S. Igoe and Y.H. Hui. Published by CTI Publications, Inc., 2 Oakway Road, Timonium, MD 21093-4247 USA, Fax: 410-308-2079, Email: sales@ctipubs.com, Website: www.ctipubs.com, Pages 240, Price $ 58.

This easy-to-use dictionary provides definitions of more than 1000 commonly used food additives, including natural ingredients. FDA-approved artificial ingredients and compounds used in food processing. The entries present clear and concise information on functionality, chemical properties, and applications. The dictionary also includes an up-to-date listing of food ingredients according to the U.S. Code of Federal Regulations. New to this edition are ingredient categories which groups principle ingredients by function and describes the characteristics and applications of each group, and E numbers for ingredients.

Contents: Ingredients Dictionary, Ingredient Categories, Additives/Substances for uses in Foods, Listing under Title 21 of the Code of Federal Regulations Food Additives, E-Numbers in the European Union, Bibliography.

When Replying To Advertisements
Please Mention
BEVERAGE & FOOD WORLD

PRODUCT REVIEW

SPECIALITY CHEMICALS/ ESSENTIAL OILS

Established in 1966 by Mr. H.N. Gogia, Gogia Chemical Industries is a pioneer in orange oil cold press. They meet the requirements of all the major flavours and fragrances houses.

The Company started the manufacturing of flavours a few years later and received a very good response from the market.

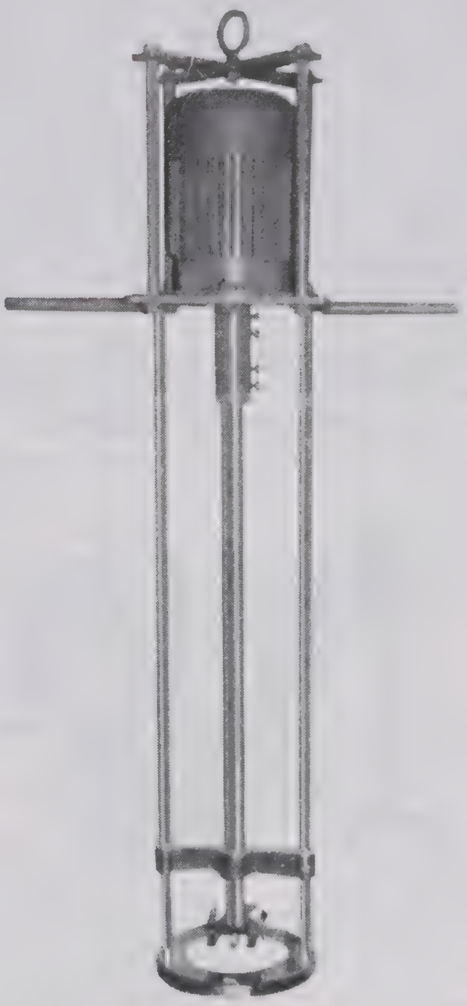
It is now one of the leaders in food flavouring and is associated with quite a large number of Industrial houses, having a clientelle of over 2000 in the domestic market which include manufacturers of confectioneries, fast foods, pharmaceuticals etc.

Presently, the company is manufacturing various natural Essential Oils, Aromatic Chemicals and Speciality Chemicals, under brand name 'Peacock' which are being sold across the country, and are also being exported to USA, European countries, Sri Lanka and South Africa. The flavours are used extensively in Process Food Industry, Confectionary, Beverage and Pharmaceuticals.

For further details contact :

Gogia Chemical Industries Pvt. Ltd.
A-127, Okhla Industrial Area
Phase-II
New Delhi - 110020
Tel: 6836007, 6910329, 6925664
Fax : 011-6840763
Email: gcipl@vsnl.com
Website: www.gogia.com

STIRRERS



COSYWO has developed profit boosting design of **Stirrers,** equipments and machinery considering operational convenience time saving, labour saving and trouble solving problem with guarantee for performance, dependebility and less breakdowns. The commitment to product development and improving process knowledge is continuous.

COSYWO's objective is perfect job, expertise, quick service, superior quality and fulfilment of its responsibilities to customers. They provide guaranteed solution for mixing problems.

COSYWO has vast experience in modifying/modernising/manufacturing customs built **Stirrers** with excellent workmanship. No matter how small your mixing need or how large and complex you can mix with the best.

COSYWO is specialist of Rubber Sleeve Expander • Roller for Textile Steel Plastic Aluminium foil Leather cloth and Paper S S Guide Roller • Batching Roller • Cloth scutcher • Gum Mixing pans • S S size mixing tank • Water Line Sand Filter Lab Mangle • S S Poteye • S S Ager Patti • Farakadi • Reaction vessels • Ball Mill • All products are manufactured in well equipped workshop vigorously tested and precisely inspected to achieve desired results.

They are leading manufacturers since 1960 for Stirrers • Agitators • Emulsifiers • Dispersers • Homogenisers • Disintegrators • Attritors • Conical Blenders.

For further details, please contact:

Cosywo™ Engineering Company
15, Laxmi Co-op Industrial Estate
Near Nagarvel Hanuman Mandir
Amraiwadi Road
Ahmedabad 380 026
Telefax (O): 91-079-2748168/2748001
Website: www.cosywo.com

REVERSE OSMOSIS SYSTEMS FOR WATER PURIFICATION

When we discuss "high purity" drinking water we are specifically talking about water for which virtually all types of unwanted contamination have been removed. This includes organic chemicals such as TCE, pesticides and all other carbon-based materials, inorganic salts such as sodium, metals, lime, nitrates, radioactive materials and biological growth such as bacteria.

Komal Industries is a water treatment manufacturer dedicated to offering their customers the finest commercial, industrial and medical Reverse Osmosis systems. They are committed to providing the most innovative and technologically advanced quality systems to their customers at reasonable technologically advanced quality systems to their customers at reasonable prices. Their knowledge and experience enables them to manufacture most of RO system's parts in-house to ensure quality system. Komal also tests every unit prior to shipping and supplies each customer with all the best data for their systems. Komal has a system suitable for both city water as well as highly contaminated brakish well/bore water. Wide range of standard Systems are available. Komal manufactures small System for office/residential purpose to industrial RO having capacity ranging from 50 lit/hr. to 1700 lit/hr in standard models. Higher capacity RO are made as per the client's specific requirements on turnkey basis. Komal's dedicated and professional customer service and technical personnel are always ready to assist their clients in a timely manner with any questions on servicing or installation.

For further details, contact:

Komal Industries
108 Creative Ind. Centre
12 N.M. Joshi Marg
Lower Parel (E)
Mumbai 400 011
Tel: 3091090/3091174
Fax: 022-3062711
Email: komal@komalwater.com
Website: www.komalwater.com

WASTE WATER RECYCLE TREATMENT

Ion Exchange India recently introduced the eco-friendly and economical Indian Reed Bed System for treatment and recycle of industrial effluent, sewage and sullage as a solution to increasing problems of pollution and water scarcity.

A specially engineered simulation of a natural wetland ecosystem, the INDION reed bed system resembles a garden of flowering plants. It consists of a sedimentation tank and a reed bed filled with proprietary material and planted with acclimated, indigenous wetland plants. After clarification in the sedimentation tank, the waste water flows through the reed bed medium and around the roofs of acclimated plants and gets treated for organic and suspended impurities by the combined action of acclimated aerobic, anaerobic and facultative microbe and fungi. The reed bed thus performs the functions of an aeration tank, secondary clarifier and sludge handling mechanism, combining mechanical filtering, chemical precipitation and biological degradation in one step through a single, simple aesthetically designed unit. After disinfection, the water can be used for toilet flushing, gardening and irrigation or to recharge ground water.

The INDION reed bed system can handle difficult effluents and a wide range of organic matter, and can adapt itself to diverse effluents and varying shock loads. It is virtually operation and maintenance free, there are no strong odours or sludge formation, and is long lasting and self-sustaining. However, it requires a large area, inorganic sludge cannot be handled and water with very high TDS (total dissolved solids) levels cannot be treated.

It finds application for effluent treatment and recycle in the dairy, food processing, brewery, manufacturing and chemical industries, animal husbandry and laboratories. It is effective in treating and recycling sullage and sewage from residential, institutional and industrial complexes; hotels, holiday resorts and restaurants; schools, military installations and construction camps.

The Central Pollution Board has recently released guidelines for the use of reed beed systems, in effect approving constructed wetland systems for wastewater treatment.

For more information, contact:

Ion Exchange (India) Ltd.
Tiecicon House
Dr. E. Moses Road
Mumbai 400 011
Tel: 022-4939520/23/25/31/32
Fax: 022-4938737
Email: ho.commun@ho.ionxchng.co.in

RAPID COOKING OVEN

At this years Anuga Fair (Colognes Germany), TurboChef Technologies (TurboChef® Oven), Gelpa (packaging) and Unilever Bestfoods (food) join their efforts in the introduction of the new rapid cooking oven TurboChef®. It's this united approach that enables the concept to reach its full potential.

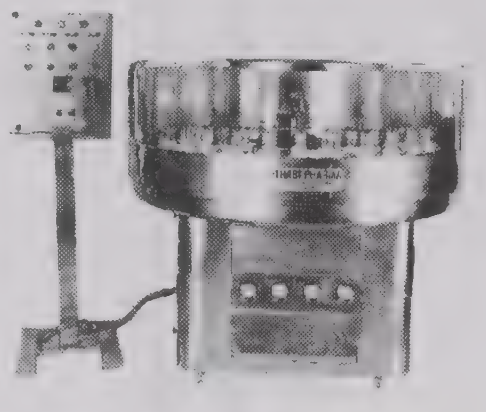
TurboChef® cooks whole grilled chicken in just seven minutes, salmon en croute in two minutes and five seconds, crisp pizza and apple turnovers in two minutes, French fries in fifty seconds. With TurboChef®, it's no longer a food fantasy. TurboChef® bakes, roasts, grills and poaches up to ten times faster than a conventional oven. TurboChef® unites fast food cooking techniques with traditional preparation skills. Something that, until recently, was considered impossible. The end result is that, it dishes that taste just like they have been traditionally prepared and cooked. Consistently high quality food, regardless whether fresh, refrigerated or frozen products are used.

The basis of the TurboChef® is a four-dimensional technique: High velocity directional airflow, thermal in-line heat transfer, launching microwave energy into the centre of the food, all controlled through a sequential staged cooking process via a computer management system.

For more details, contact:

Gelpa Packaging
Delta 2
(industrial estate IJsseloord 2)
PO Box 2110
6802 CC Arnhem
The Netherlands
Tel: 31(0)26 384 3838
Fax: 31(0)26 384 5183
Email: e.a.c.boon@gelpa.nl
Website: www.gelpa.com
www.bagables.nl

ROTARY BOTTLE WASHER



Rotary Bottle Washing M/c.

Kothari Pharma, a manufacturer of a wide range of equipments for the pharmaceutical and chemical industries, offers Rotary Bottle Washer, a cost-effective, elegant-looking and highly efficient equipment as per GMP standards. Operating on the Rotary principle with 'Geneva mechanism', the washer is ideal for washing glass, plastic and other material bottles for the pharmaceutical and chemical industries. The rotating platform with a series of simple operation gives the bottles a clean washing within a short time. The bottle holder has a unique design to accommodate bottles with varying neck diameter and bottle diameter. External cleaning of the bottles is done by spraying showers. Timing and sequence of washing process can be regulated to suit specific requirements of the products to be washed.

The Rotary Bottle Washer has many unique features, which match GMP standards. The output is 64 to 100 bottles per minute. It is provided with four separate stations for inside wash and one station for outside wash. The specially designed cups are provided on the platform to accommodate any size of bottle in the range of 100 ml to 500 ml. Absence of rotating carbon plate eliminates leakage and minimises maintenance. The stationery washing nozzle ensures that there is no contamination from the wash water to the bottles. Individual solenoid valves for each wash makes the equipment the least complicated unlike the other conventional models available in the market. It is fitted with higher capacity centrifugal pumps for sufficient water and pressure required to wash large sized bottles (500 ml and 1000 ml). The machine can also be modified for washing 1000 ml IV fluid bottles, for which a maximum of six washing stations can be provided. The electrical load is 5 KW and the gross weight of the equipment is hardly 1,050 kg. And best of all, Kothari Pharma's Rotary Bottle Washer assures significant saving in water, energy and time.

For further details, contact:

Kothari Pharma
C/11, M.K. Bros. Indl. Estate
Jarimari, Andheri-Kurla Road
Andheri (W)
Mumbai 400 072
Tel: 851 0837/ 2794, 859 2888
Fax: 91-22-8513485
Email: chandrakant@kotharipharma.com
Website: www.kotharipharma.com

When Replying To Advertisements
Please Mention
BEVERAGE & FOOD WORLD

SODIUM BENZOATE

Sodium Benzoate, well known preservative is manufactured by Ganesh Benzoplast Ltd. in their state-of-art plant at Tarapur, Maharashtra. Benzoic Acid is manufactured from oxidation of Tolueno, only route which gives food grade quality, and conforms to the 154467-1554 of Bureau of Indian Standards. The quality is checked regularly by their representative and GBL is the only company in this country, which manufactures food grade quality in form of powder, flakes and granules.

As per Prevention of Food Adulteration Act 1954, Sodium Benzoate falls in class 2 preservative and its use is recommended in fruit and vegetable juice, fruit pulp, beverages, squashes, crushes, fruit syrups, jam, jelly, marmalade, mineral water, pickles, chutney, tomato sauce, puree and pastes.

Its other applications are also being tested at shop floors, preservation of fish, spices and cakes are also new fields for sodium benzoate. GBL holds an ISO 9002 certificate and exports Sodium Benzoate to various developed countries like USA, UK, France, Germany etc.

Fumaric Acid, Acidulent and Anti-oxidant, is manufactured by Ganesh Anhydride Ltd., at their state-of-art plant at Tarapur. GAL manufactures Maleic Anhydride under the same roof and converts it to Fumaric Acid.

There are many manufacturers of Fumaric Acid but it is bye-product of their Pthalic Anhydride plant. GAL manufactures food grade quality as per IS:6793:72 of Bureau of Indian Standards.

Fumaric Acid (food grade) is also recommended by PFA94 in fruit juices, tomato juice, fruit syrup, squashes, tomato sauce, ketchup, jam & marmalade and various fruit/vegetable sauces. The taste of Fumaric Acid is very near to tamarind and is being used in sambhar by many Southern Hotels.

It remains as free flowing powder and retains original flavour while citric acid absorbs moisture and frozen lumps. Its efficiency (sourness) is higher then citric acid, 3 parts by weight of citric acid is equivalent to 2 parts of fumaric acid.

This makes it a very cost-effective ingredient for various food receipes.

For further details, contact:

Ganesh Benzoplast Ltd.
Ganesh House
Marol Naka
Andheri (E)
Mumbai 400 059
Tel: 8502096
Fax: 91-22-8505529
Email: rkpl@vsnl.com
Website: http://www.ganeshgroup.com

NORDEN TUBE FILLING AND SEALING MACHINE

NORDEN of Sweden, is the undisputed world leader in manufacture and supply of high speed Tube Filling, Sealing and Cartoning Machines and fully automatic lines.

NORDEN enjoys a market share of 55% around the globe, with a large number of machines being used by the leading pharmaceuticals, cosmetic, personal care and chemical companies. Taking continuous technology developments as its mission, NORDEN has developed innovative sealing methods, such as Hot Air Sealing and Design - A- Seal which enjoys worldwide patent.

Design-A-Seal, as the name suggests, offers 10 different sealing shapes on the tubes to suit individual design needs and is undoubtedly the most aesthetic and strongest seal available in the market. Many of the international players like Walls, Unilever, Colgate-Palmolive, Boots, Revlon and others have benefitted immeasurably from this feature making their product more attractive, exclusive and noticeable. Design-a-Seal not only increases the shelf appeal of product but also the sales volume as well. The other technical developments are: Servo lifting mechanism, Robot feeding systems, CIP-SIP cleaning.

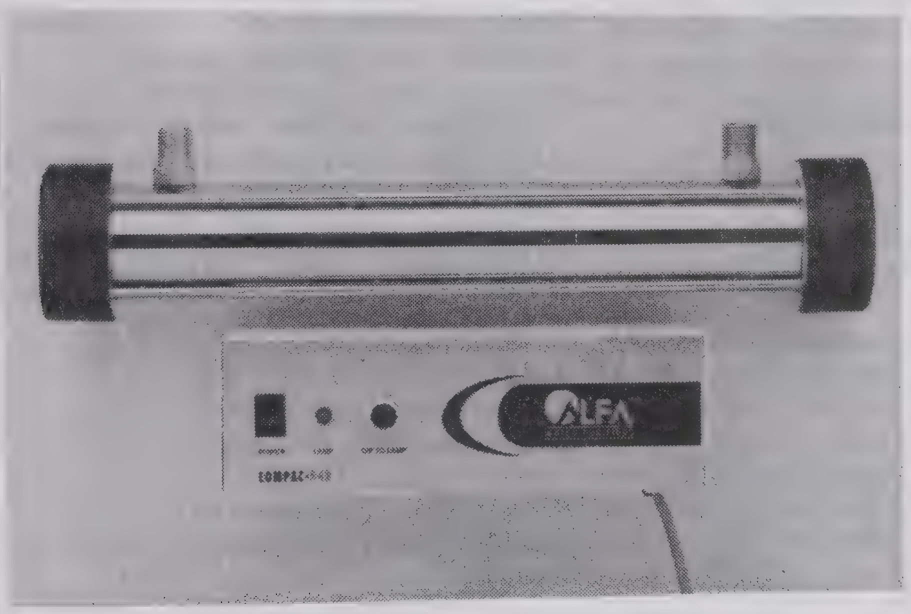
NORDEN has a range of machines with output of 40, 70, 140, 200 and 300 tubes per minute, depending upon the type of tube and product to be filled. Batch coding facility on tubes is also available.

RIECO are the exclusive representatives for NORDEN in India for these innovative sealing shapes.

For further details, contact:

Rieco Industries Ltd.
1162/2, Behind Observatory
Shivajinagar
Pune - 411 005
Tel: 0212-553 5215 / 553 5384
Fax: 0212-553 3229
Email: package@rieco.co

WATER PURIFICATION SYSTEMS



Ace Hygiene Products is amongst the leading manufacturers of ultraviolet water purification systems in the country with an experience of over one-decade in the field. They specialise in process water applications where bacterial disinfection of process water, which is used in manufacturing and washing areas, is of utmost importance.

The Alfa AP-Series models are capable of purifying water from 100 to 1,00,000 litres/hour based on customer's specific needs.

The Alfa systems use the principle of Ultraviolet light to purify water without the addition of any chemicals or heat. High intensity germicidal lamps totally inactivate water borne bacteria, viruses and pathogenic microorganisms.

Alfa water purification systems find wide application where bacteria free water is required and is ideally suited for food industry, hospitals, bottling plants, pharmaceuticals, and drinking water systems and for process water in industries.

The unique advantage of the Alfa UV systems is that they offer an optional **On-Line Fail-Safe validation** with the help of the Alfa Sensor which is an Ultraviolet Monitor to ensure proper disinfection efficiencies, thus making the UV system Reliable and Effective.

They are experts in sizing the customer's requirements and offer professional solutions to bacterial disinfection problems in the process industry using the UV principle.

They have successfully catered to a wide and impressive customer list, that includes firms like Pepsi, Parle, Kwality Biscuits, Naik Sea Foods, Libran Sea Foods, Gausia Foods. Pfizer, Bayer, Johnson & Johnson, Jaslok Hospital, Bombay Hospital etc.

They will be able to provide a suitable solution to your bacterial problems in water if you send them details like feed water quality, quantity of water to be purified per hour and specific application along with a sketch of the piping layout.

For further information, contact:

Ace Hygiene Products
222, Shah & Nahar A-2
Lower Parel, Mumbai 400 013
Tel: (022) 494 5957, 495 4190
Fax: 91-22-495 4250
Email: ho@alfa-india.com
Website: www.alfauv.com

CANNING MACHINES

Cantech Machines established in 1987 by A. P. Pandya, an engineer with over 30 years of experience at Metal Box Co. of India Ltd. is a trusted name for fruit and vegetable canning machineries.

Cantech's can seaming and reforming machines have international standards and are highly suitable for canning fruits and vegetables. The machines have the capacity to manufacture 10-30 cans per minute.

The Can Seaming & Reforming Machine is Semi Automatic Seaming Can with diameter 51 mm to 178 mm and height 51 mm to 248 mm. Output 20-40 cans per minute depending on size. The machines are robust, and easy to handle.

The other machine is CM 510 body beader is suitable for beading flanged can bodies at an output speed of 20 to 25 cans per minute depending on operator's skill and size of container. Diameter Range: 75mm to 175mm, Height Range: upto 250 mm.

Pear pointed gauge is an instrument for determining the vacuum in an open top can for processed food. It can also record pressure developed in the can due to spoilage or hydrogen formation.

Semi Automatic Seamer with speed of 30-40 cans per minute, Body Reformer, Hand Flanger, Flange Rectifier, Body Beader, Embossing Press, Testing equipment are some of the other machines manufactured.

Cantech seaming machines have also been exported to the Middle East and various African countries. Cantech represents Shin-I Machinery Works Co. Ltd., Taiwan for high speed seamers and Chase Manhattan Inc-Taiwan for easy open ends.

For further details, contact:

Cantech Machines
13, Vora Bhawan
1st Floor, King Circle
Matunga (C.R.), Mumbai 400 019
Tel: 4096086, 4096853
Telefax: 91-22-4096086

FOOD INGREDIENTS

Jay Chem Marketing are authorised distributors for various food Ingredients and preservatives such as Aspartame, acesulfame K, Calcium propionate, Carrageenan, Enzymes, Glucone, Delta Lactone, Glyceryl Mono Stearate (GMS), Mono Sodium Glutamate, Pectin, Potassium Sorbate, Sorbic Acid, Sweetners and Xanthan Gum.

The ingredients are available regularly and at competitive prices.

For your requirements, contact:

Jay Chem Marketing
B/5, 3rd Floor, Nemi Krishna Society
V. L. Road, Kandivali (W), Mumbai 400 067
Tel: 022 8020141/8061337
Fax: 022 8061337
Email: jaychem@bom3.vsnl.net.in

HIGH PRESSURE CRATE WASHER

Goma high pressure crate washer has been successfully working in various industries. The crates/trays are washed thoroughly by high pressure water jet only. There is no requirement of steam, detergent, chemicals etc. The machine is more compact and with minimum maintenance.

The crates/trays are conveyed automatically by conveyor chain fitted on stainless steel fabricated frame. The crates/trays pass through high pressure water jet nozzles having accurate spray angle for washing. The high pressure is generated by a high pressure pump driven through electric motor and mounted close to conveyor. The speed of conveyor is variable and can be adjusted to get optimum washing effect. The washing process is carried out inside the stainless steel fabricated enclosure which prevents all egress of water. The enclosure has a provision for easily openable doors for maintenance purposes. Waste water is collected in a pump which can be connected either to the sewage system or can be reused passing through the special filtration system. The whole machine is provided with adjustable feet for levelling and needs no fixing to the floor. A separate electrical control panel is provided.

Advantages: • Fully automatic • Ensures optimum cleaning in the fastest possible time • Compact design for space saving • Time and man power saving • No need of steam, chemicals, detergents etc. • Low power consumption • Easy for operating and maintenance

For further details, contact:

Goma Engineering Pvt. Ltd.
Behind Universal Petrol Pump
Majiwada
Thane - 400601
Tel: 91-22 5340875/5346436
Fax: 91-22 533 3634/2
Email: goma@vsnl.com
Website: www.gomaengg.com

STACKED RING FILTERS

Kumar Process Consultants are manufacturers of stacked Ring Filters, ideally suited for clarification of Sugar Syrup, Honey, Wine, Beer, Fruit Juices and Pharmaceutical products. Filter is made of a shell fitted with filter elements formed by stacking of specially designed rings on a machined rod to form a cylinderical porous structure which is rigid having a flow volute on the internals. These elements are coated with filtered to form a sturdy and porous filter bed. The fluid which is to be filtered is passed through this and the filtered fluid is taken to collection tank or for down stream processing.

The stacked filter ring is compact, requiring no consumable spares. It is made of SS316 and Sealing gaskets in Silicon, PTFE and viton to with stand hot water sanitization or stream sterilization. Unit does not need to be dismantled for cleaning.

For more details, contact:

Kumar Process Consultants
& Chemicals Pvt. Ltd.
230/4, Ashoka House,
Behind Hotel Sheetal Arch
Linking Road, Bandra (W)
Mumbai 400 050
Telefax: 6451964, 6420637, 6432512
Email: kumarfil@vsnl.com

FOOD PROCESSING MACHINERY

Bombay Industrial Engineers is a reputed company for manufacture of various food processing machinery like Pulpers, Juice Extractors, Steam Jacketed Kettle, Fruit Slicers/Crushers, Mango Cutters and Canning retorts, Hot/Cold Liquid Slicing Lines, Bottle Closing Powder Filling and Form Fill Sealing Machines.

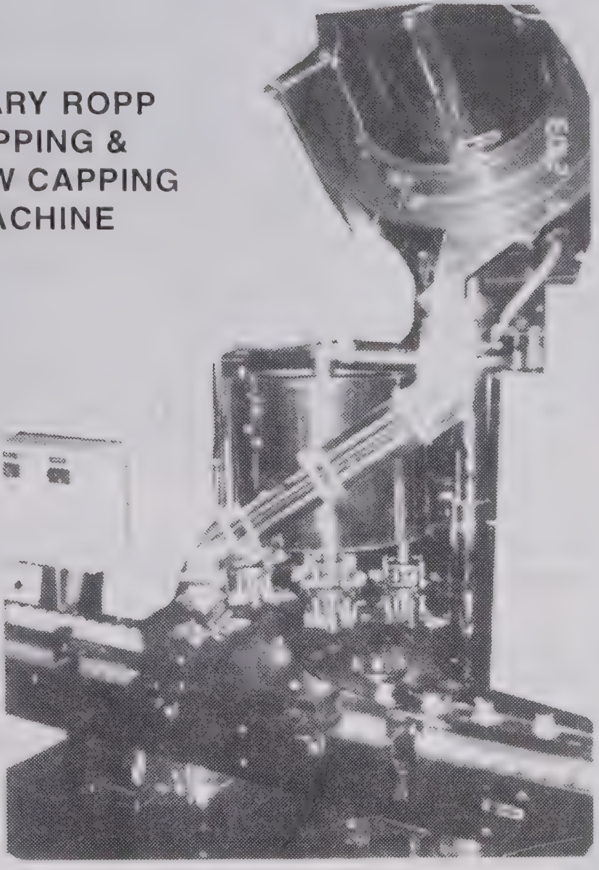
They also manufacture Dryers, Tray, Tunnel Drum and Fluid Bed. The company manufactures Biscuit Bread making Machine, Toffee Hard Boiled Sweet Machine, Chewing Gum making Machine, Boilers, Themopack, Sigma Kneaders, High Speed Mixers, Planetary Mixers, Powder Mixers, Weighing machines, BOPP/Industrial Tape manufacturing machine and plant.

For further details, contact:

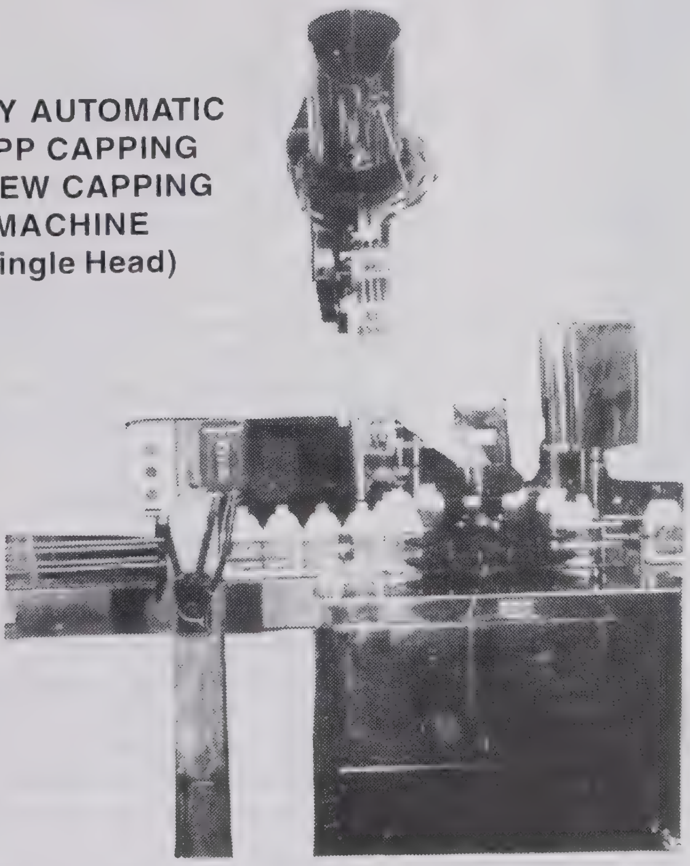
Bombay Industrial Engineers
13, Crystal Apartment
Gulmohar Cross Road
11, J.V.P.D Bombay 400 049
Tel: 6232810 • Telefax: 6201914
Email: ijsehgal@bom5.vsnl.net.in

H.P.
INDUSTRIES

ROTARY ROPP
CAPPING &
SCREW CAPPING
MACHINE

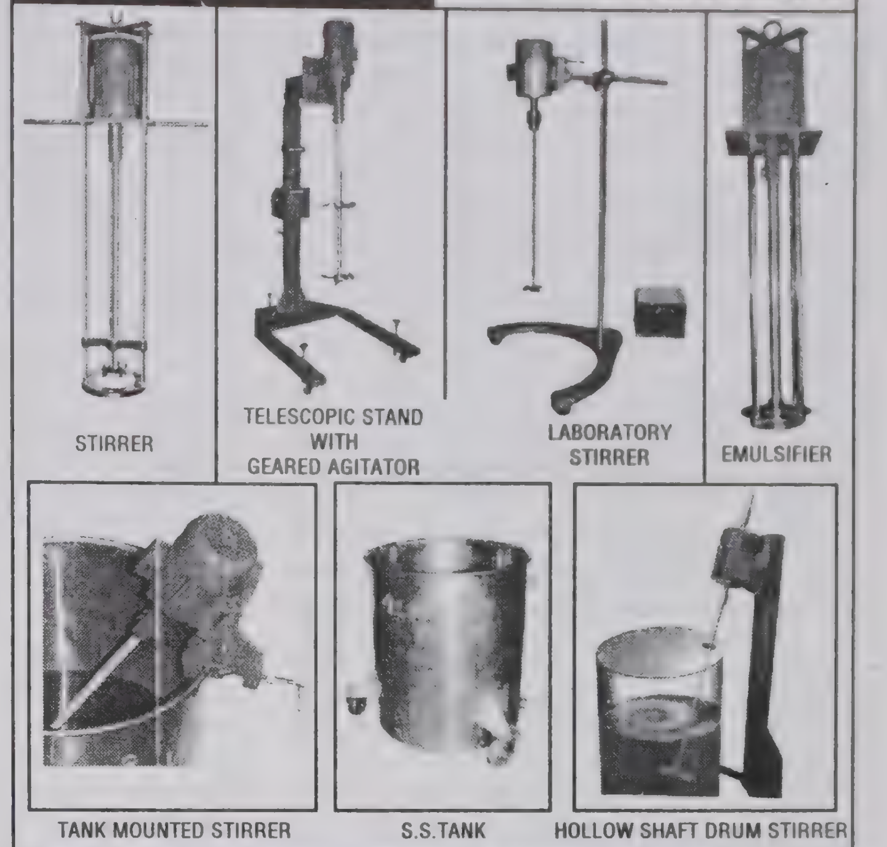


FULLY AUTOMATIC
ROPP CAPPING
SCREW CAPPING
MACHINE
(Single Head)



2, Joquim Cottage, Vazir Glass Works Road
J.B. Nagar, Opp. Tata Infotech Ltd.
Andheri (E), Mumbai 400 059
Tel: 6920722/23 • Telefax: 8352505
Email: hujone@bol.net.in • I.P. Address 168.143.67.27

COSYWO™ STIRRER


STIRRER
TELESCOPIC STAND WITH GEARED AGITATOR
LABORATORY STIRRER
EMULSIFIER
TANK MOUNTED STIRRER
S.S.TANK
HOLLOW SHAFT DRUM STIRRER

EXCELLENT SERVICE SINCE 1960

COSYWO™ ENGINEERING COMPANY
15 laxmi co op ind estate near nagarvel hanuman
mandir amraiwadi road ahmedabad - 26 India
telefax : 2748168 2748001 Mobile : 98250-63568
website : www.cosywo.com
कोसीवो

Available Regularly

*Citric Acid • Tartaric Acid • Stearic Acid
G.M.S. • Calcium Propionate • Ajinomoto
Sacharine • Orange Oil • Lemon Oil
Vanillin • Peppermint Oil • Menthol • Cream
of Tartar • Soya Lecithin • Malt • Cocoa
Gelatine • Pectin • Sodium Benzoate • Wax
B.H.A. / C.M.C. / K.M.S. / S.M.S. / S.A.S. /
M.A.C.P. Hydro • Stearates • Milk Powder
Glycerine • Food Flavours • Food Colours
Food Chemicals*

Contact :

P.M. VORA & CO.

Ramesh Chamber, First Floor,
14, Garibdas Street, Vadgadi,
Mumbai 400 003
Tel: 3438487 / Telefax: 3445367
Resi: 8647275 / 8073565
Email: hopl@bom5.vsnl.net.in

CRATES AND CONTAINERS

Prince Multiplast (formerly known as A-1 Plastics) is one of the largest plastics processors in India. They have developed capabilities in manufacturing Injection Moulded Bottle Crates, Material Handling Crates as well as Blow Moulded Packaging Containers.

Prince Multiplast is an ISO 9001 certified company by Quality Assurance Services, Australia. Some of its customers are Coca Cola, Pepsi and Cadbury for its plastic crates while its blow moulded containers are sold to the likes of Gulf Oil, National Dairy Development Board and Indian Oil Corporation. The company's products are seen virtually in every state of the country.

Continued quality improvement is a way of life at Prince Multiplast from designing development, manufacturing, inspection, testing, production to distribution and customer service. Prince Multiplast has also ensured that product design and manufacturing processes are eco-friendly to avoid wastages.

Prince crates are injection moulded in high grade plastics. Available in a wide range of design and colours, they are odourless and resistant to acids, alkali solutions in common use and are non-toxic. They can be screen printed and embossed with the customer's name and logo and have excellent stability and stacking capacity. These strong and durable crates are used in variety of industries like Fisheries, Hatcheries, Vanaspati, Edible Oils, Ice Creams, Frozen Desserts, Soft Drinks, Beverages, Breweries, Textiles, Automobiles, Farms (Floriculture, Horticulture or an Orchard). Bakeries and many more.

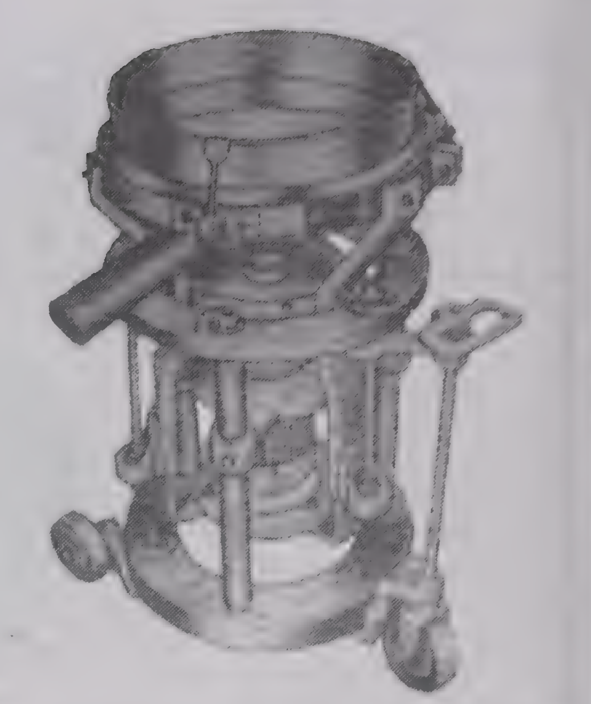
The company produces a wide range of blow moulded articles from 0.5 ltrs. to 30 ltrs., which enables the company to be a one stop shop for its customers who need different sizes of containers. The various functions consisting of product design, development, manufacturing, testing, storing and supply are done under one roof which enhances the co-ordination and quality and hence, better services for valuable customers. The industries which use the company's containers include edible oil, lubricant oil, chemicals, pharmaceuticals and household liquids.

The Computer aided designing centre, with its well equipped Testing Laboratory, modern manufacturing facilities and a team of skilled, dedicated personnel, enables the company to satisfy the customer's needs at all times.

For further details, contact:

Prince Multiplast Pvt. Ltd.
Amar House
Plot No.103, Road No.12
Marol MIDC, Andheri (E)
Mumbai 400 093
Tel: 91-22-8363600/01/02/03/04
Fax: 91-22-8360404/0088
Email: sales@princemultiplast.com
Website: www.princemultiplast.com

VIBRO SIFTERS



Magumps, already a well reputed and known name in the field of pharmaceutical bulk drug process industries for high quality equipment and plants introduces 'Vibro Sifters' useful in dry separation, dry classification, straining, sieving, gradation, solid liquid separation, solid classification etc. This can be used in pharmaceuticals. grains, fertilizers, animal feeds, abrasives, pulp and paper, foods, ceramics, minerals, water disposal, chemical and petro chemicals.

The vibro sifters are manufactured with all the product contact parts in S.S. (304/316/316L quality), and is available from 12" dia to 72" dia. The sieves used, have been newly designed, simple type with soldered rim similar to mechnical sifter for ease of quick change over. These sifters are simple in construction, simple to use and maintain. They have no rubber parts and hence require minimum maintenance, 20 to 30% extra output than mechanical sifter, modular design i.e. additional decks can be added at any time very quickly, intensity of vibration can be changed by adjusting eccentric weight.

They can also be supplied with dust cover, complete S.S. covered body as per GMP. Over 30 units have already been sold for domestic as well as export market.

For further details contact :

Magumps
Trisandhya 'A', 97, D. Phalke Road
Dadar (E), Mumbai 400 014.
Tel: 411 3572, 415 4474
Fax: 022-413 7648 / 8307
E-mail: magumps@bom5.vsnl.net.in.

REVERSE OSMOSIS UNITS

Aguapuro Equipments carries a complete range Reverse Osmosis Units ranging from 100 to 5000 LPH.

Standard features include Pre Micron Filter, High Pressure Pump, Pressure tubes with Membranes, Electrical Control Panel with TDS meter and Wet Panel with Flow Indicators and Pressure Gauges, Pressure Switch and electrically driven Solenoid valve, Pressure Regulator valve, Powder coated steel frame (Skid) etc.

Optional features include Membrane cleaning system, Level switches, Low Pressure cut off switch, Automatic fast rinse flush, Low pressure safety cut-off switch etc.

The modular design allows for a wide range of flow rate ranging from 100 LPH to 5000 LPH. Larger flow also handled with custom made designs.

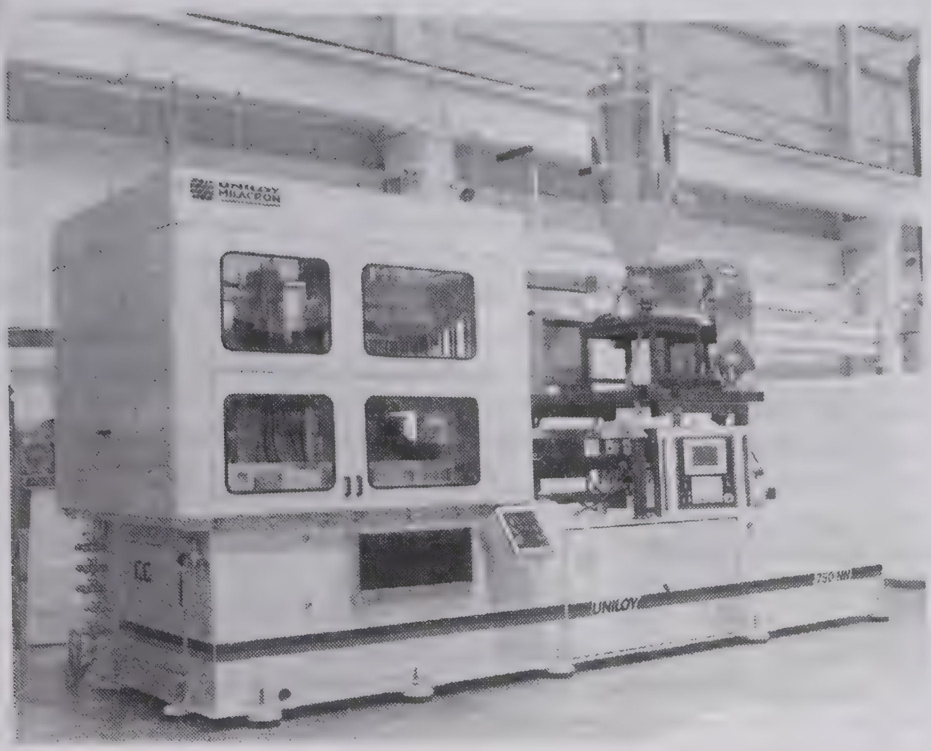
Systems are designed using the State-of-the-art Reverse Osmosis Technology using High rejection thin film RO Membrane. They also offer complete system with pre treatment of Chlorination Coarse Filtration, Carbon Filtration, Softening and Post Treatment of De Mineralisation, UV sterilization, Ozonation etc. for process and other applications.

For further details, contact:

Aguapuro Equipments
2/22 Panwala Building
Dr. S.S. Rao Road
Parel, Mumbai 400 012
Tel: 91-22-410 1432 / 415 5576
Fax: 91-22-410 1432
Cell: 0 98210 78929
Email: aguapuro@vsnl.com
Website: www.aguapuro.s5.com

When Replying To Advertisements
Please Mention
BEVERAGE & FOOD WORLD

BLOW MOULDING MACHINE



A one-step solution to multi-product PET bottle needs, the new Uniloy U750-60 stretch blow molding machine provides faster change over in flexible production and uses existing tooling for major cost economies, while reducing processing complexity. The four-station machine consolidates all phases of bottle production - perform injection, conditioning, blow molding and ejection - into a single compact unit to simplify production scheduling and minimize work-in-process inventories.

It produces containers up to 5.118" (130 mm) depth in widths from 2.126" (54 mm) to more than 5". A wide-mouth version of the machine - for large neck bottles and containers up to 135 mm in diameter is also available.

Maximum (theoretical) injection capacity is 91.53 in^3 (1500 cm^3). The U750-60's extruder system also reduces air bubbles that can occur when manifold and nozzle passages are allowed to drain and fill with air. Injection and blow clamp tonnage is 60 tons (U.S.). Overall machine size in 285" x 93.50" x 134" (7.24 x 2.38 x 3.41 m) L x W x H.)

Engineered for high uptime and reliability in around-the-clock service, the U750-60 features modular hydraulic system, commercially available hydraulic cylinder, and dual hydraulic pump arrangement.

For further details, contact:

Uniloy Milacron
10501 Highway M-52
Manchester MI 48158
Tel: 1-800-666-8852, Fax: 734-428-1165
Email: adinfo@uniloy.com

LIQUID FILLING MACHINES

H.P. Industries manufacture a range of Special Purpose Machines. Among the Filling machines manufactured by them is the automatic liquid filling machine which is used to fill liquid and pastes. The machine is automatic with high speed extreme accuracy. It accepts any container and is simple to operate. It works independently of human error and fatigue.

H.P. Industries filling machines are Rotary Gravity fillers with high flow rate value and capping heads. They are fully automatic machines designed for filling plastic, glass or metal containers ranging in sizes from 100 ml to 22 litres. The fillers feature stainless steel construction to handle hot or cold liquids and to maintain machine integrity even in repetitive high volume filling.

This machine can give you an output of 25 bottles per minute to 150 bottles per minute. The main advantage of the filling machine is its easy clean-up facility. The machine is most suitable for filling mineral water, milk, juices, oil, cream and other flowable liquids.

The machines not only fills containers but also sorts or carries them to and from the filler. It can be taken on a conveyor to one end of the line and service other features such as rinsing, labelling and coding etc.

Service excellence is more than a matter of pride at HP Industries. It is the central reason behind the development and growth of the company.

For more details, contact:

H.P. Industries
2 Joquim Cottage
Vazir Glass Works Road
J.B. Nagar, Opp. Tata Infotech Ltd.
Andheri (East)
Mumbai - 400 059
Tel: 835 2505, 839 2883
Fax: 091-022-4305504

OZONATORS

Creative Concept has launched microprocessor based OZ AIR series of Ozone Generators, Ozone Sterilization Systems and Ozone Monitors for Disinfection of Air, Water and Food items. These intelligent Ozonators can decide about "Ozone Dosing" and "Duration of Operation" for achieving total disinfection in a specific area. Ozone Generators and monitors have digital Ozone Concentration Alarm settings, duration of operation etc.

Ozone is the fastest acting oxidizing disinfectant and the most efficient broad-spectrum micro-biological agent commercially available. Being highly reactive and completely non-discriminating it acts immediately. This makes Ozone a very powerful bactericidal agent. Ozone as unlike any other oxidizing agent leaves no toxic residues, thereby being environmentally friendly and helps reduce pollution.

These Ozonators are user friendly, better maintainable State-of-the-art, equipped with a provision of remote control.

For further details, contact:

Creative Concepts
F-60, Sector 8
Noida 201301
Telefax: 011-4523339/4552249, 4543337
Email: concept@nda.vsnl.com

WEIGH- FILL MACHINES

Kaizen Enterprises offer *Kaizen Tula* semi-automatic weigh-fill machines for packaging tea, coffee, beans, sugar, grains, farsans, wafers, oilseeds, pulses, dryfruit, etc.

The microprocessor Weigh Controller is used for accurate weigh controlling along with loadcells and electromagnetic vibrator. The filling range is from 50gms - 1kg and 1kg to 5kg. The product hardly needs any maintenance. Twin head and multihead versions are also available.

For more details, contact:

Kaizen Enterprises
A-5, Trupti
G.V. Scheme Rd. #4
Mulund (E)
Mumbai 400081
Telefax: 5646873
Email: kaizen@zeenext.com

MICRO PLC WITH OPERATOR PANEL

M90 MICRO-OPLC

Rajdeep - BBTT introduces Unitronics make Operator panel + Programmable Logic Controllers. PLC is integrated with on board I/O's which can be expanded up to 64 I/O. Different Digital, Analog, High speed and PT100 I/P's can be easily configured. Controller also offers both digital (Relay or Transistor) and analog O/P's.

OPLC has integrated HMI for interface. HMI has 15 user configurable keys and 16 character 1 line backlit LCD display. 15 key keypad can be used in connection with the display to set different process parameters like counters, timers. Also indication of process status and different error / diagnostic messages can easily be displayed on display for fast troubleshooting.

M90 PLC also supports the full functional Real Time Clock, which makes PLC suitable for any Real Time dependent application also. Programming of M90 using U90 ladder software is user friendly as the package is window based. Also the software provides separate editors for ladder, display and variables in one project only, which means no different software for PLC and HMI. Unlike conventional PLC's the program when uploaded from PLC to PC, rung comments, symbols & remarks are uploaded alongwith ladder, thus changes and debugging becomes very easy.

For more details contact :

M/s Rajdeep Industrial Products Ltd.
7 Pavapuri Bldg.
9 Khetwadi Lane, Mumbai 400 004.
Tel: 022-3864105
Tel/Fax : 022-3893252

DEHYDRATED ONION/GARLIC

Janak Dehydration Pvt. Ltd, was established in 1992 with the dynamic and pioneering zeal of N.L. Mehta with over 50 years of experience in the agricultural business. The company owns hundreds of acres of plantations in Mahuva, Bhavnagar, around its factory, which is located around 800 km from Mumbai.

The major crops being cultivated in their plantations are onions, garlic and other vegetables. All these products are processed and exported to all main European ports including Canada, Latin America, Australia, New Zealand, Japan, Korea, Taiwan, Hong Kong etc.

The company is managed by a professional team specially qualified in the field and having vast agricultural business background. The company has a total business turnover of 4000 MT of fresh onions annually. The total processing capacity is 6000 kgs of final product per day.

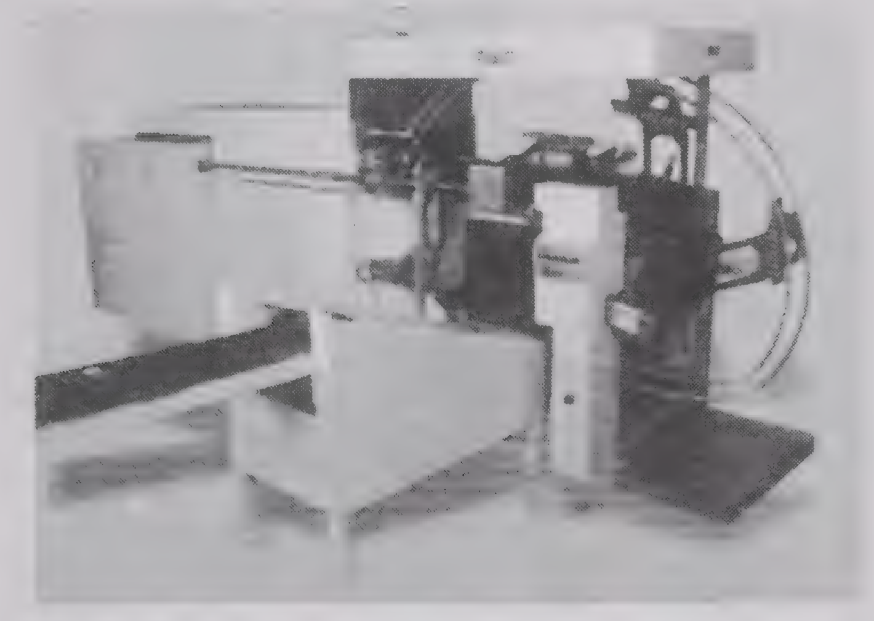
The company has its own warehouses with storage capacity of 5000 MT of raw onions. Janak Dehydration Pvt. Ltd. employs over 500 persons in its premises.

The Dehydrated Onions are available in three colours, white/red/pink - and in different forms like Flakes, Kibbled, Slices, Rings, Mince and Powder.

For further details, contact:

Janak Dehydration Pvt. Ltd.
B-305, Sunder Dham
Ram Baug Lane
Off S.V. Road, Poisar
Borivali (W)
Mumbai - 400 092
Tel: +91-22-8074436, 8061113
Fax: +91-22-8612735
Email: jkmehta@bom5.vsnl.net.in

BAKING MACHINE



R&D Engineers are India's first & foremost manufacturers of Wafer biscuit & Ice-cream cone machines. Their years of experience and with the application of latest design and technologies to meet exacting market demand. Their product ranges from small table top machines to fully automatic machines. They also design and supply tailor made solutions to an individual customer need.

R&D Machines are characterized by highest standards in precision, in operating ease, utmost durability and service life.

The "ZE" series of semiautomatic machines are used for baking ice cream cones, sugarcane and cups. These machines are easy to use and are robust. The heating is by electrical heaters designed to optimize energy use and thermal distribution, still flexible for high production on nonstop basis for 24 hours.

The machines manufactured by them are Ice cream Cone baking machine, Batter mixing machine. Automatic Wafer baking machine, Manual Baking Tongs, Rolled Sugar cone machines, Automatic and Semi-Automatic baking machines.

For more details, contact:

R&D Engineers
A-41, IDA Kukatpally
Phase II, Road No. 4
Via I.E. Gandhi Nagar
Hyderabad 500 037
Tel: 3079121, 3079878
Fax: 91-40-3078668
Email: randengg@hd1.vsnl.net.in
Website: www.rndwafers.com

TIN CONTAINERS MAKING MACHINE

Ganga Singh Engg. Pvt. Ltd., manufacture a range of Tin containers in round, rectangular, oval shapes.

The company also manufactures seaming machines for packing liquids, dry contents and pesticides.

For canning industries, the machines available are: Semiautomatic sealing machines, Can Reforming machines, Can Flanging machine both power and hand operated.

For further details, contact:

Ganga Singh Engg. Pvt. Ltd.
1 Vishal Ind. Estate
Village Rd.
Bhandup (W)
Mumbai 400 078
Tel: 5600562, 5690572
(R) 5645287
Fax: 5649312
Email: ganga@bom4.vsnl.net.in
URL: http://www.gangengg.com

TAZA FOODS (P) LTD.

MANUFACTURES SNACK PELLETS BASED ON POTATO, RICE AND URAD

We offer different varieties of shapes and flavours in each product range. The product taste is richer and the bite is excellent, comparable with any high quality product.

TAZA

For further details contact:

TAZA FOODS PVT. LTD.
E-312, Crystal Plaza, Lokhandwala Link Road
Andheri (W), Mumbai - 400 053
Tel.: 022-6346890 / Fax: 022-6349048

Apex International

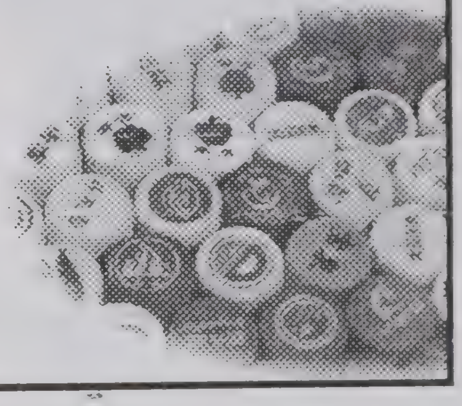
Available

28 mm Liner Caps for Pet Soda and Carbonated Soft Drinks

High Quality Product with MNC (Pepsi/Coca Cola) approval

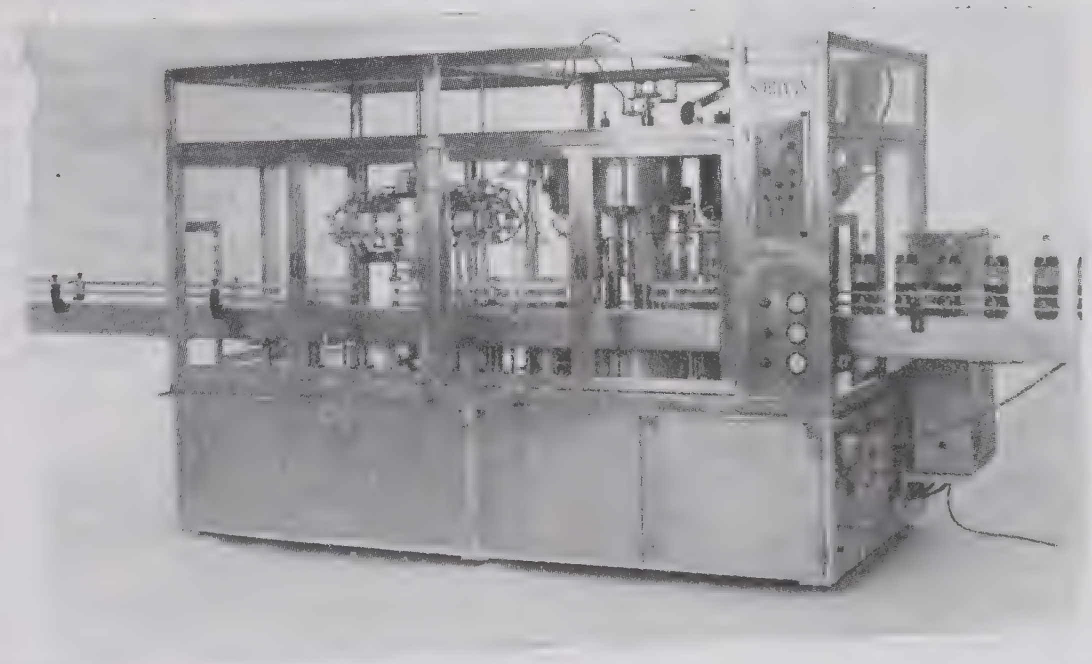
White Colored & Printed Caps Available

For enquiries contact
98112 56037
98112 22013
98141 24476



SHRIYAN

CARBONATED & NON CARBONATED PACKAGING MACHINERY



ROTARY RINSER COUNTER PRESSUR FILLING & CAPPING MACHINE

For
Soda / Mineral Water
Soft Drink / Distillery
In Pet Bottle / Glass Bottle

WE ALSO UNDERTAKE TURNKEY PROJECTS

For further details contact:

SHRIYAN ENTERPRISES
B/5, Ghansyam Industrial Estate
Veera Desai Road
Andheri (W), Mumbai 400 053
Tel: (022) 636 9057 / 8328 / 6903950
Tel/Fax: (022) 636 8320
Email: shriflow@vsnl.com

Pune Branch: 12 A, Sagar Complex, Bombay-Pune Road, Kasarwadi-Nasik Phata, Pune 411 034
Tel/Fax: (020) 7128708, 7124341 / 8708

LEAK CHECK MACHINE

Harikrishna Technocrates Engg. Co. are one of the leading packaging machinery & material handling equipments manufacturer for different industries like Beverage, Chemical, Cosmetic, Dairy, Distilleries, Food, Pesticides, Pharmaceutical & Allied Industries in India.

The company manufacturers high quality machineries subassemblies, spares & components for different industries. **HTEC** has developed appropriate capabilities to compete in National & International markets with Marketing Sectors, Domestic Presence, Zero Defect Products & Delivery in Committed Schedule. HTEC adheres to quality parameters at every stage of production with sound technical staff with all necessary equipments. Adequate care is taken to adhere to GMP norms for manufacturing and strict quality inspection is carried out during different stages of manufacturing.

Leak Check Machine specially designed unique machine is useful to check any type of leakage in plastic bottles. Conveying system is made from slate conveyor which carries bottles upto checking end. At the checking station Star Plates lift up bottles and it will align bottles between rotary plate and pressure rod. Rotating Plate rotates continuously which gives a right checking image of bottles through adjustable pressure rod. The checked bottles will move on another machine for further operation. The machines are made of SS-304 Slate from SS-304 or Delrin Material.

Technical Details (Standard): • Bottle Size Min. Height 70mm x Diameter 40mm • Bottle Size Max. Height 305mm x Diameter 150mm • Speed 80 to 120 Bottles/Minute • Power Supply 440 Volts A.C./50HZ (3 Phase) • Dimension in MM Height 1200 x Width 300 x Length 1750 • Weight 160 Kg Approx.

For more details, contact:

HariKrushna Technocrates Engg. Co.
C-1, 4310, Phase -IV
Nr. Neeka Tube Chokdi
G.I.D.C., Vatwa
Ahmedabad 382 445
Tel/Fax: 079-5835010
Mobile: 9825049429
Email: maulik_htec@satyam.net.in

ULTRAVIOLET WATER DISINFECTION SYSTEM

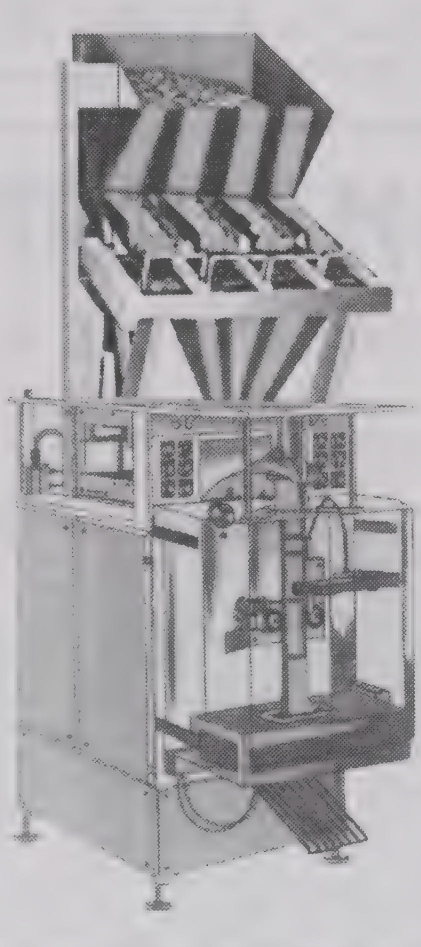
The Ultraviolet Water Disinfection System using the latest US based Teflon® Technology is the ultimate answer to prevent pollution and contamination in water. Non-fouling Teflon® Tubes UV units for water and waste water treatment are used to overcome scale problems. These units find application in disinfection of drinking/process water, pre-treatment before R.O., algae and slime control, purer fermentation products. The system can also be used for various industrial applications such as supply of high purity water for beverage, bottling, brewing, pharmaceuticals, food processing etc. It achieves near cent percent water purity without any side effects. It is also cost effective and maintenance free.

Among the products offered are various models of water disinfection systems, ranging from 225 LPH to 12 Lac LPH of UV systems, micron filters, carbon filters, air irradiators etc.

For further details, contact:

Hitech Ultraviolet Pvt. Ltd.
P.O. Box. No. 8356
35, Grace Plaza
S.V. Road
Jogeshwari (W)
Mumbai 400 102
Tel: 6790610, 6794611, 6794327
Fax: 6794337
Email: hitechuv@bom5.vsnl.net.in

FORM-FILL-SEAL MACHINE



The form- fill-seal machine from Unique Flexo forms, fills and seals the package from the reel. The result is a sachet so tightly sealed that it keeps food or pharmaceutical products fresh maintaining its sterility. The separation of individual sachets can be reached either by a knife system or by a hotwire cut off system. All contact parts of the machine are of S.S. 304 grade.

This machine can be used for packing various products such as Milk, Juices, Tea, Coffee, Pesticides, Detergents, Oil, Medicines, Chemicals etc...

Salient features:

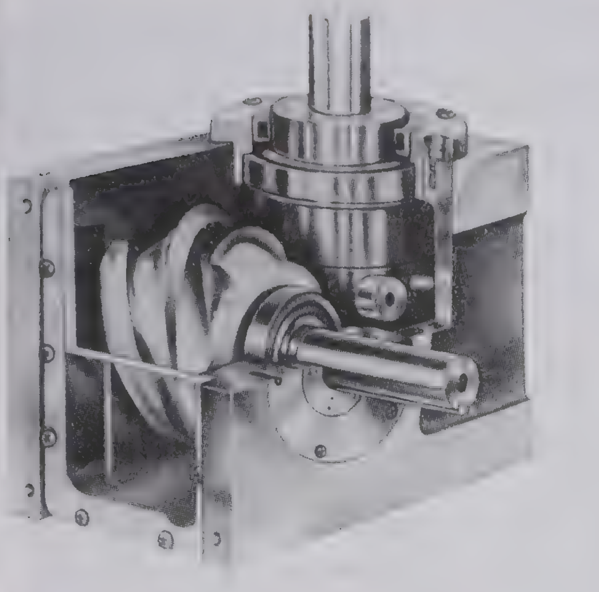
* Packs 15 gms to 1 Kg of powders and granules and upto 1 litres for liquids * Basic machine can be mounted with powder, granule or liquid filler * Automatic Batch Coding & Date of packing device provided * Speeds up to 45 pouches per minute per track * Available in Single and Double track models * Handles all types of heat sealable films * Optional photocell registration unit.

For more details, contact:

Unique Flexo Packaging
Gala No. B270, Off Manpada Rd,
Opp. Kasturi Plaza
Joshiwada
Dombivli (E) - 421 201
Email: unipack_2@hotmail.com

When Replying To Advertisements
Please Mention
BEVERAGE & FOOD WORLD

CAM INDEXING SYSTEMS



Camfield Engineers Indexing systems are indigenous, economical for accurate indexing and high production of Pharmaceutical, Packaging, Printing, Machine Tools, Polishing, Spot Welding, Rotary and Linear Continuous Processing Machinery. Main body is made in graded cast iron in rectangular shape designed with multi mounting positions. The cams and drive parts are of alloy steel duly hardened and ground. Cams are profiled in SPM CNC Cam Cutting Machine. The indexers are available in various sizes of wide ranges. You may also contact us for any type of cams requirements.

For more details, contact:

Camfield Engineers
21 Shreepal Service Industrial Estate
Chincholi, Pavan Baug
Malad (W), Mumbai 400 064
Tel: 8751033
Telefax: (91-022) 8740452
Email: contact@camfield.com
Website: www.camfield.com

BAGGING MACHINE

Wraptech Machines Pvt. Ltd., offers a fully automatic PLC based Vertical Form-Fill-Seal Machine for powders, free and Non-free flowing, Granules, Pulses, Beans, Spices, Soups, Detergents, Yeast, Desserts Pharmaceutical and Agricultural Powders, Tea, Coffee, Sugar, Rice etc.

A vertical form, fill and seal machine for producing centre sachets handling all types of free flowing / non-free flowing powders / granules.

The above machine handles a single reel film stock. Max. reel dia. is 500 mm on 76 mm core. The machine has the capability to be provided with a variety of filling heads like Volumetric Cup (Telescopic), Auger Filler, Weigh Filler, Count Feeder, Index Conveyor belt. Draw down of the film is through draw down belts controlled through a electromagnetic clutch brake combination. The length of the bag is controlled by print registration system which is PLC based. For unprinted film the bag length can be adjusted from the single touch key pad provided on the front panel.

Special Features: • PLC controlled with XBT membrane keys • AC Inverter drive for main motor speed control • Adjustable draw down belts • Detachable perspex and stainless steel guards, easy for fault finding • Power reel unwind • Can be adapted to seal unsupported films using impulse sealing system • Inbuilt self diagnostic features • PC uplink facility • Password protection for settings • Hourly production data • Overload protection.

Machine packs 50 packs per minute depending on the product type and flow properties.

For more details, contact:

Wraptech Machines Pvt. Ltd.
Dharamchan Industrial Estate
Deonar Village Road
Mumbai 400 088
Tel: 551 2138, 558 3596
Telefax: 91-22-557 0726
Email: abm@wrapmachines.com
Website: www.wrapmachines.com

APPLE JUICE CONCENTRATE

One of the largest German fruit juice manufacturers in Paderborn/Westphalia will in future convert fully to the FRUPEX® technology of Westfalia Separator for producing apple juice concentrate.

In conjunction with various affiliated companies in the GEA Group, Westfalia Separator Food Tec is responsible for the entire engineering of the complete installation. The heart of the installation comprises the FRUPEX® line with five decanters type CB 505 for juicing, two selfcleaning clarifiers type SC 150 for clarifying the juice, and one decanter type CD 305 for processing the retentate. Westfalia Separator will also integrate an evaporator installation, a mash heater as well as a membrane filtration facility in the process.

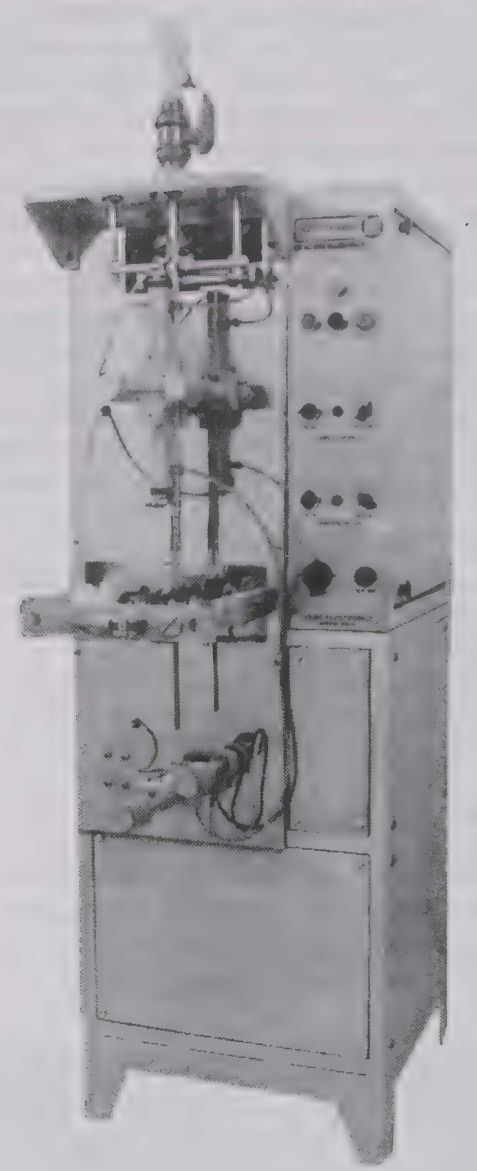
In addition to juicing up to 30 t of apples per hour, the new FRUPEX® installation will in the second stage also process the solids discharged from the cloudy apple juice line which started operation two years ago.

Three decanters of the type CD 505 are already being used very satisfactorily in this line. It is planned that the new apple juice concentrate line will start operation in the 2001 / 2002 campaign.

For more details, contact:

Westfalia Separator Food Tec GmBh
Werner-Habig-Straße 1
D-59302 Oelde
(F.R. Germany)
Tel: 49(0)25 22 / 77-0
Fax: 49(0)25 22 / 77-24 88
Email: info@gea-westfalia.de
Website: www.westfalia-separator.com

JUICE / LIQUID PACKING MACHINE



Lucas Electronics manufactures juice/ liquid packing machines, in particular the Master Seal Liquid Filling LE-F.F.S-200 Series vertical Packaging Machine.

This machine automatically forms a bag, fills it, then seals and separates the finished packets. The LE-F.F.S- 200 is suitable for all kinds of low density liquids like Juice, Oil, Milk, Mineral Water and any type of free flowing liquids. The Master Seal Vertical form fill and seal machine (F.F.S.) is robust with particular consideration for minimum maintenance, easy to adjust and high reliable output. All contact parts are manufactured by stainless steel. This machine constructed with unique features, is easy to operate for the customers.

Other products manufactured by them are • Liquid/Cream Filling • Shrink Wrapping • Gas Flushing • Continuous Band Sealer • Motorized Pepsi Sealer & Cap Sealer

For further details, contact:

Lucas Electroncis
B2/5, Mapkhan Nagar
Near Fire Brigade, Marol Naka
Andheri (E), Mumbai 400 059
Tel: 8213660 • Fax: 8501265
Telefax: 8254978
Email: lucasg@bom2.vsnl.net.in
Website: www.lucaselectronics.com

FILLING MACHINES

Apex Electromec Pharma Pvt. Ltd., having industrial machine manufacturing experience of nearly two decades, has made its formidable foray in food and beverage Industry.

The company manufactures single and multiheaded automatic powder/granule Fillers. The accessories it offers for the filling line are swing and slat conveyor, turntable, endless packing conveyor and combicapping multiheaded machine.

Apex Electromec Pharma also offers Infrared Ray Dryers and Material Handling equipments like fixed lifter, mobile stacker, lifters and filter and round IPC.

For more details, contact:

Apex Electromec Pharma Pvt. Ltd.
16, Nitin Indl. Complex
Ghaitan Area, # 1, S.P. Road
Near Vaishali Nagar
Dahisar (E)
Mumbai 400 068
Tel: 8964096
Telefax: 8960263
Fax: 8968615
Email: apexppl@hotmail.com
Website: www.apexelectromec.com

FOOD PROCESSING MACHINERY

Hari Om Industries offers food processing machinery under brand name "Krishna" Dryfruit Cutting Machine can cut Almond, Pista, Cashewnut, Groundnuts, etc. easily.

It's average production is 15 Kg. to 25 Kg. per hour approximately. After extraction the powder residue is almost equivalant to nil. To get better cutting quality, dryfruit medium must be fully dry.

To get three different sizes of pieces, extra attachment can be supplied on demand as per clients specification or requirement.

Auto cutting system as well as the machine is without pullybelts. Also, it has 0.25 HP Electric Motor with complete wiring. Moreover, the machine is light in weight, equipped with Casterwheel to shift the machine anywhere. Body of machine is madeup of Iron and Stainless Steel.

Machine's weight is approxemately 28 Kg. and it's size is 16" (Length) x 12" (Width) x 20" (Height).

Krishna Dryfruit Cutting Machine is very useful for Icecreams, Bakery, & Dairyfarm products.

For more details, contact:

Hari Om Industries
"krishna" Brand Food Processing
Machinery & Resaler
Dhebar Road (South)
Atika Industrial Area
St. 3, Near Jaydev Foundry
Rajkot 360 002
Tel: 363620 / 371745 (R) 371438
Fax: 371745
Email: hariomind@epatra.com

ULTRA PURE WATER

Ultra Pure comes from Aqua Filsep, Inc., one of the leading manufacturers of water and waste water treatment equipment in India. Aqua Filep Inc. is a pioneer in putting R.O. technology to innovative use in various industrial applications. Backed by extensive experience and world class parts procured from associate world-wide, Ultra Pure offers never before features for an output water quality equivalent to mineral water.

Ultra Pure uses world class spiral-wound membranes to separate and remove dissolved solids, organics, pyrogens, submicron colloidal matter and bacteria from water. Feed water is delivered under pressure of approximately 125 psi through the membrane. Water permeates the minute pores of the membrane and is delivered as purified product water. Impurities in the water are concentrated in the reject stream and flushed to drain. Reverse Osmosis is capable of removing 90-95% of the total dissolved solids (TDS) and 99% of all bacteria, thus providing safe, pure water which is not possible with other purifiers based on UV or Ozone technology.

For more details, contact:

Aqua Filsep; Inc.
7, Retiwala Industrial Estate
H.A. Palav Marg, Byculla (E)
Mumbai 400 027
Tel: (O) 371 9455
Fax: 91-22-4465521
Telefax: 4465521
Email: filsep@vsnl.com
Website: http://www.aquafilsep.com

FRUIT PROCESSING MACHINERIES

Since 30 years M/s. Techno-Equipments has been manufacturing and supplying high quality Fruit Processing Machinery to leading Fruit Processors.

The high quality of the machine as per the specification given is due to the expertise and dedication of Food Technology/Engineering in this field.

All machines are designed and fabricated under the supervision of Senior Technologists and experienced engineers, by maintaining strict quality control from procurement of raw material to the final assmbly under going rigid tests before it leaves the factory.

Techno-Equipments is manufacturing machines like Exhaust-box, Retorts, Steam jackets kettles with/without anchor type stirrers, Fruit Pulpers, Fruit Mills, Juice Extractors, Vacuum Bottle Fillers/Washers, Pineapple Slicers and Papaya Cubers with s.s. Tanks.

For more details, contact:

Techno-Equipments
9, Satyam Industrial Estate
Behind USV Ltd.
Off. B.K. Devashi Marg
Govandi, Mumbai 400 088
Tel: 5515640

RUBBER STEREOS

Garuda Engineers are manufacturers of excellent quality groove and flat rubber stereos for all kinds of packaging products mostly used by Pharmaceuticals Foods, Pesticides, Agro, Distillers, Beverages and Packaging industries. Other machines available with them are • Fully automatic high speed label and carton coding machines • Blister and strip packing machines • Pouch packing machines for liquid, powder and granule filling • Ampoule/vial/bottle washing, drying, filling and sealing machines • Automatic/Semiautomatic cap sealing machine • Semi automatic labelling machine • Filter press.

For further details, contact:

Garuda Engineers
Rudrax II, Shed No.3
G.I.D.C. Phase III, Vatva
Opp. Annapurna Restaurant
Ahmedabad 382445
Fax: 079-2165739
Tel: (Works) 079-5890193

FABRICATED POTATO CHIPS LINE

Dasbro
大家宝
POTATO CHIPS

The impressive taste and innovative shape of fabricated potato chips have fostered an exponential worldwide growth in consumer demand for this type of product.

Pawan has developed a complete process system for the fabrication of the stackable chip which is technologically sound and able to produce a first rate product.

The raw materials, mainly consisting of potato based ingredients (granules, flakes, potato flour and modified starches), are blended and introduced into the mixing tank by means of gravimetric dossers.

The hydration liquid, where the minor ingredients such as salt, glucose, etc. are dissolved, is injected into the same tank at a constant ratio to the solids input.

The homogeneously hydrated dough is then transferred to a multi-rolls sheeting system where a continuous sheet is formed and calibrated to the desired thickness. The chips are then cut from the sheet and the scrap web is chopped and returned to the mixture tank for re-use.

The properly oriented chips are transferred to the frying operation where the dough moisture is evaporated and the product takes on an expanded and crunchy structure. The uniform single curve shape is achieved thanks to the use of a special conveyor that maintains the chips in the required shape during frying Upon discharge from the fryer, a dispensing system applies seasoning onto the chips.

In the packaging section, the chips are single stacked into continuous rows. A set of volumetric loading devices creates the stacks which automatically pass through an automatic seamer that injects an inert gas to improve the shelf life of the fabricated potato chips.

The packaging may be customized: can, tub, flow-pack, etc.

For more details, contact:

Dr. T.K. Food
E-312, Crystal Plaza
Lokhandwala Link Road
Andheri (W), Mumbai 400 053
Tel: 022-634 6890
Fax: 022-634 9048

RECYCLING PLANT

Planning and building the first recycling plant in Germany based upon the URRC process will be done by Krones AG. This process enables complete bottle-to-bottle recycling.

Bales or briquettes of compressed PET bottles are the ideal recycling material. Even scruffed bottles from pool of returnable bottles can be utilised as input to be recycled. A separating drum breaks the bales and briquettes down into their separate components. Coarse foreign bodies are then removed by hand. The PET bottles are ground into uniform particle size, while paper, labels, foil etc. are removed by various other processes. The pure PET flakes are sprayed with caustic soda solution and heated in a rotary oven. The two processes combined cause the top PET layer to peel off. The prepared flakes are washed once more, leaving a raw material capable of being transformed back either into PET preforms or bottles. The cycle is hereby completed.

The recycling process is of particular interest to handlers of the two way model, where the non-returnable bottle can be reclaimed and processed into a new preform. The URRC process from Krones will enable two-way bottles, non-returnables and damaged returnables to be put to better use than through the thermal recycling process.

For more details, contact:

Krones AG
Bohmerwaldstraße5
D-93068 Neutraubling
Germany
Tel: ++49(0)9401/70-0
Tel/Fax: ++49(0)9401/703496
Email: presse@krones.de
Website: www.krones.de

SPECIALITY INGREDIENTS

The Food and Nutraceutical Div. of S.A. Pharmaceuticals is now very well established and offers Speciality Ingredients to Food Industry. The unique ingredients include whey proteins concentrates import substitute casein, caseinates, natural calcium, prebiotic and bifidus plomelev Inulin and FOS, flour milling enzymes to maintain standard quality of bakery flour, economic substitution of gluten, various polyhydric alcohols, fructose, modified starch and acidulants to improve the quality of food products and help to label the end product as functional food.

For more details, contact:

S. A. PharmaChem Pvt. Ltd.
220, Udyog Bhavan, Sonawala Rd.,
Goregaon (E), Mumbai 400 063
Tel: 876 4700 • Fax: 91-22-876 9532
Email: sac@sachemicals.com
Website: http://www.sachemicals.com

METAL DETECTORS

Metal Detectors are useful in Food, Pharmaceutical, Soap, Rubber and Chemical Industries. Protects the end user from metal contamination ensuring quality maintained and also the processing equipment from damage due to presence of metal contamination in process materials.

Metal detectors developed and designed indigenously works on eddy current principle using focused electromagnetic field.

Incorporating dual channel phase detection system and automatic balance scheme ensures optimum detection and stable performance.

Digital metal detectors are also available having salient features such as: • 100 Product Memory • Data Retention on Loss of Power • Validation • Computer Connectivity • Password Protection etc.

Designed using highly stable tuned high frequency oscillator, performance of the equipment is maintained throughout without any periodic adjustments.

All the materials used in construction are of stainless steel and food grade. Test coil apertures in various sizes along with annunciation and suitable rejection mechanisms are available.

For further details, contact:

Technofour Electronics Pvt. Ltd.
45, Ambedkar Road
Near Sangam Bridge
Opp. Indian Airlines Office
Pune 411 001
Tel: +91-20-612 5905 / 612 2488
Fax: +91-20-612 3922
Email: info@technofour.com
Website: http://www. technofour.com

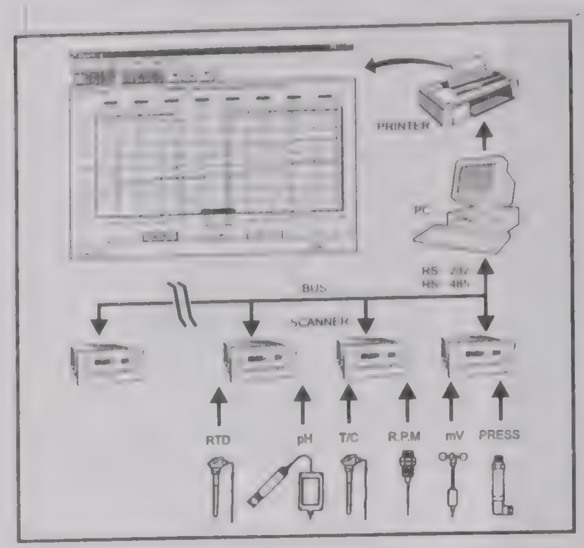
PET BOTTLES CLOSURES FOR CARBONATED SOFT DRINKS

Apex International is the leading distributor of Hercules closures for Pet bottles used by carbonated soft drinks and aerated water (soda) manufactured in India. The company is in the field for three years now and offers two piece (inner caps) approved, tested, certified and used even by MNCs like Pepsi and Coca-Cola world wide. The USP of these caps include low price, High CO_2 retention properties, in-home logo printing on cap surface at nominal price, range of colors and prompt delivery country wide. This has made Apex the most reliable source for quality CO_2 closure and low pricing in todays competitive consumer market.

For more details, contact:

Apex International
Tel: 91-175-225917, 701196
Mobile: 98141-24476 / 98112-56037/
98112-22013

DATA ACQUISITION SYSTEM



Nippon Technologies has successfully installed state of art Data Acquisition System Nippolog. It consists of Scanners, Universal Indicators, Counters and Software. The software periodically acquires data from above instruments and presents it in various forms at the user's monitor.

Nippolog is indigenously developed, easy to use and interactive. The process data is available on graphical trends and tabular format.

The batchwise data archival, comparison of one to many channels helps to analyze and improve the process. The RS 485 protocol helps to collect data over longer distances. Printing facility helps to get hard copies.

Nippolog finds application in Pharmaceutical, Bulk Drugs, Dyes & Chemicals, Petrochemicals, Engineering, Power Plants, Glass, Textiles, Air-conditions/ Refrigeration, Test Laboratory and many other Industries.

For more details, contact:

Nippon Technologies
214/9, Jawahar Nagar
Road No. 3, Goregaon (W)
Mumbai 400 062
Tel: 022-872 7294
Fax: 91-22-875 2289
Email: nippon@bom2.vsnl.net.in
nippontech@vsnl.com
Website: www.nipponinstruments.com

TEMPERATURE INDICATOR

radix
Prima OSP
150.0

Radix offers PRIMA OSP, a reliability engineered temperature indicator. It accepts Pt100 input (0.1% accuracy), J or K thermocouples (1% accuracy) as well as linear (voltage/current) inputs. It has a high efficiency, 3½ digit, 0.56" (15mm) red LED display, and features a lowpower, zerowiring modular design.

A unique design approach not only allows it to work accurately in ambient temperature up to 60°C, but results in an order of magnitude improvement in reliability. Options include a 4-20 mA output and power supply for a 4-20 mA transmitter input. PRIMA OSP is housed in a 96 × 96 × 150mm ABS case and has an elegant facia.

Also available in this series are PRIMA 720 (72 × 72 × 110mm) and the controllers Prime 1 SP (96 x 96 x 150 mm) Prima (72 x 72 x 110 mm) and PRIMA 2SP (96 × 96 × 150mm) featuring 1 and 2 setpoints respectively.

PRIMA OSP is offered with 230 V AC transformer supply or 85-265 V AC SMPS.

All PRIMA instruments are also available in CMRI certified flameproof enclosure.

For more details, contact:

Radix Microsystems
D/201, Bonanza Industrial Estate
Kandivli (East), Mumbai 400 101
Tel: 8872440, 8872116, 8870517
Fax: 91-22-8874433
Email: sales@radix.cc
Website: www.radix.cc

INK CODER

Satish Enterprises offer their services by virtue of their own expertise and innovative designs with a vision for the profitability of Beverages, Food, and Pharmaceuticals Industries.

Indeed they have established "The name of repute" in serving the industries as "Co-Partner" in totality. Their equipment ranges are Rubber Stereos (Cliche'), Coding and Marking Inks, Overprinting Machines, Shipper / CG Box Coder / Online AutoCoder, Hot Ink Rollers for Hot ink coder like Markem® / Kortho®.

Satish Enterprises also imports and resels the Inkjet Inks / Makeup for Coding by CIJ Printer like Videojet®, Domino®, Willet®, Linx®, Imaje® etc.

The salient features are excellent coding and marking results. As on today Satish Enterprises is catalyst in pharmaceuticals, chemical, food and beverages, agrobased and cosmetics industries by supplying to more than 1000 satisfied customers.

For more details, contact:

Satish Enterprises
A-3/62, Janak Puri
New Delhi 58
Tel: 91-011-5516904, 5535353, 5502859
Fax: 91-011-555363
Email: codeprnt@bol.net.in
info@satishenterprises.com
Website: www.satishenterprises.com

ANTICORROSIVE LINING

Elasto Polymer Processors is a fully equipped and established company, undertaking jobs for manufacturing various fiber-reinforced plastic equipments using modern manufacturing processes under the control of qualified engineers and technicians. EPP undertakes manufacturing at their well laid works or at the job site as the requirement may be. One of the activities of EPP is to provide anticorrosive lining, using materials like Polypropylene (PP), Poly Viyal Chloride (PVC), Fiber Reinforced Plastics (FRP), Fiber Reinforced Bisphenol (FRB), Fiber Reinforced Viyal Ester (FRVE).

These lining are particularly used to protect metallic vessels against corrosion due to acidic or alkaline reactions in the chemical storage tanks, rotating equipments, reaction vessels, filters, ducts and scrubbers. The total engineering support is provided to the customer for the selection of material for the lining.

For more details, contact:

Elasto Polymer Processors
"Maan"
5 Saurashtra Kala Kendra Society
Nirmala Convest Road
Rajkot 360005
Tel: 361623 / 361531
Fax: 0281 – 361531
Email: elasto@wilnetonline.net

Finally, total solutions for handling & processing of all kind of fruits & vegetables in India

We have total solutions for *Cutting, Slicing, Dicing, Peeling, Washing* and *Dewatering* all types of Fruits and Vegetables. All equipments comply with HACCP standards.

OFFERED IN INDIA BY:

Neel Bio-Tech Pvt. Ltd.
S/3 Navrang, Swastik Cross Roads,
Navrangpura, Ahmedabad-380 009. INDIA.
Tel: (91-79)6426971,6565945,6568012 Fax:(91-79)6562199
E-Mail: nbo@dewang.com • dcorp@vsnl.com

IN ASSOCIATION WITH

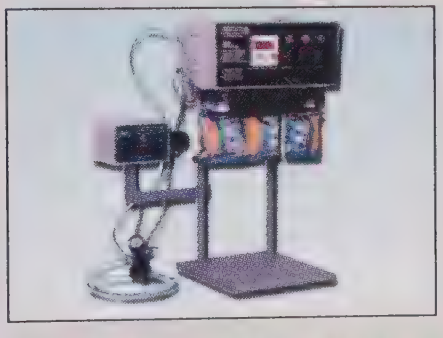
EILLERT B.V., Holland.

Image Care

DEALERSHIP INQUIRY SOLICITED THROUGHOUT INDIA

Creating New Revolution in Packaging

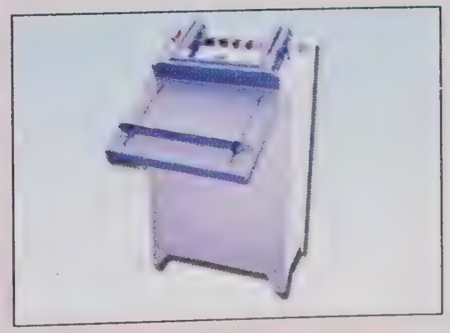
JUICE-CANDY & LIQUID PACKING MACHINE



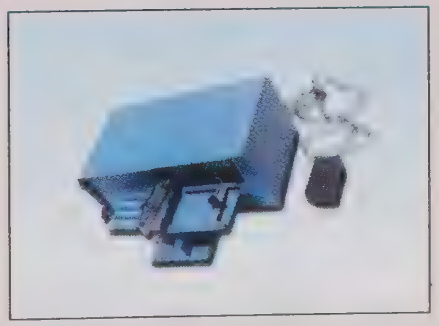
CONTINUOS SEALER MACHINE WITH GAS FLUSHING ATTACHMENT

SHRINK WRAPPING MACHINE

CAP SEALER MACHINE



VACUUM + NITROGEN FLUSHING MACHINE



MOTORISED PEPSI SEALER MACHINE

MINERAL WATER POUCH SEALING MACHINE

Master Seal

LUCAS ELECTRONICS
B2/5, Mapkhan Nagar, Near Fire Brigade, Marol Naka, Andheri (East)
Mumbai - 400 059. Tel.: 821 3660. Telefax: 825 4978. Fax: 850 1265
e-mail: lucasg@bom2.vsnl.net.in Website: www.lucaselectronics.com

PARTICIPATE - PROMOTE - PROSPER

Andhra Agri.com 2002

Organised by

Agro India

The Hitech Agri Trade Fair

24th -27th Jan. 2002

Swaraj maidan (PWD Grounds)

Vijayawada (Andhra Pradesh).

The Potentiality of Andhra Agri.Com 2002

Andhra Agri.com 2002 will be first of its kind of Agricultural exhibitions in this part of the country. Andhra Pradesh, the land of multiclimatic regions is a leader state in growing many crops like Paddy, Tobacco, Chillies, Turmeric, Pulses, Sugarcane, Oil Palm and variety of Fruit crops including Mango, Citrus etc. With the added touch of high-tech atmosphere created by the dynamic Chief Minister Shri. N. Chandra Babu Naidu, the agricultural scenario in Andhra Pradesh in general and coastal belt in particular is bouyant. It is needless to say that business opportunities here in agricultural and allied activities like Bio Technology, Food Processing, Aquaculture, Poultry and Dairy, Agricultural Equipments etc. is highly conducive. The region of Andhra all along the coramandal coast, consisting of highly progressive and enterprising farming community, is well known for innovative agriculture where agriculturists are receptive to new ideas, methods and technologies.

Sponsored by

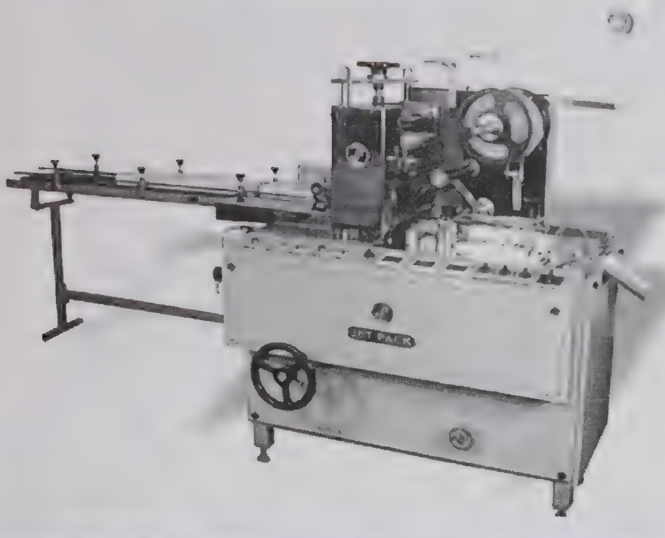
Agri Gold

For further Details Please Contact

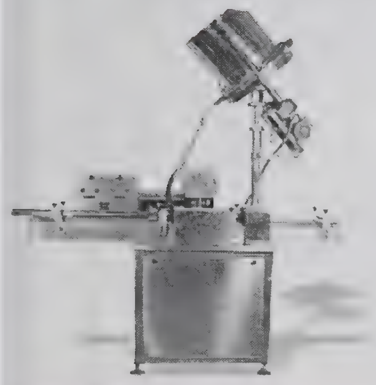
Chief Convenor,
Green Cross Media Pvt. Ltd.,
274, V. R. Manor, 100 Feet Road,
Indiranagar, Bangalore - 560 038
Tel/Fax : 080 - 5259769
email : agroindia@vsnl.com
Visit us at : www.agrimagazine.com

JET PACK

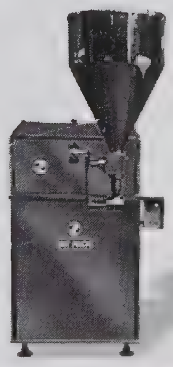
Mfgr. of Packaging Machines for
Food, Beverages, & Pharma Industries



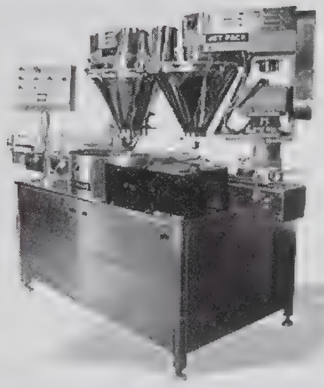
Food Products cartons premixes cartons overwrapping M/c.



Cap Pressing Machine



Cream Paste Filling Machine



Semi Automatic & Automatic Powder, Spices & Masala Filling

Other Ranges of Machines from JET PACK

- Powder Filling Machine
- Cream Filling Machine
- Volumetric Cupfiller
- Liquid Filling Machine
- Capping Machine
- Rotary Sealing Machine
- Automatic Carton Over Wrapping Machine
- Horizontal Flow Wrapping Machine
- Neck Sleeving Machine
- Aluminium Foil Sealing Machine
- Automatic Coding Machine
- Insert Pressing and Sealing Machine

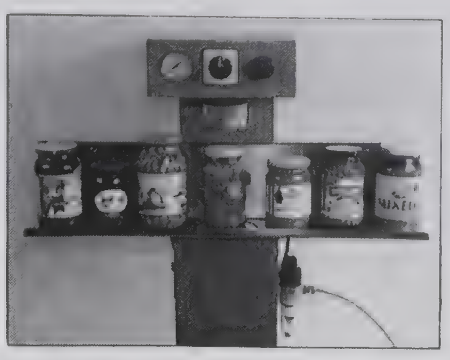
For Details Contact
JET PACK MACHINES
C-18, Nandjyot Indl Estate, Safed Pool, Kurla-Andheri Rd,
Sakinaka, Mumbai - 400 072. Tel: 851 6489 / 851 5561 / 856 0800
Fax: 851 6489 Email: jetpack@vsnl.com

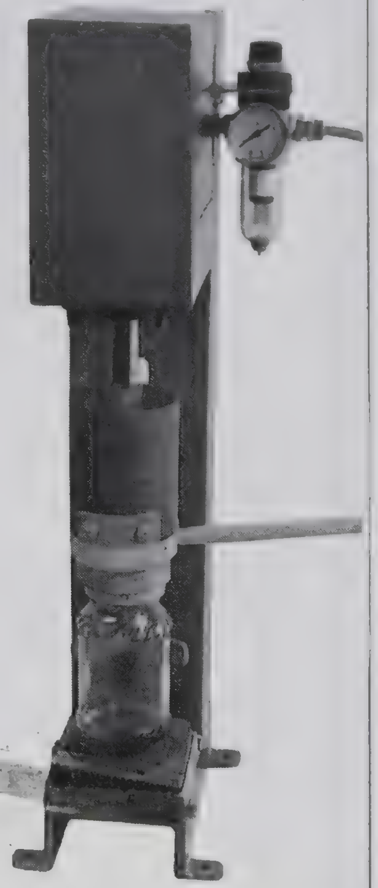
Most Reliable & Widely Used

TWIST-OFF LUG CAP SEALING MACHINE

FOR 100% LEAK-PROOF
AIR TIGHT SEAL

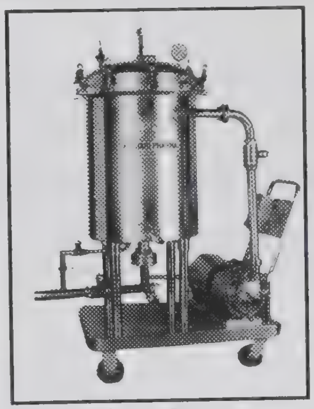
Over 100 Machines in use



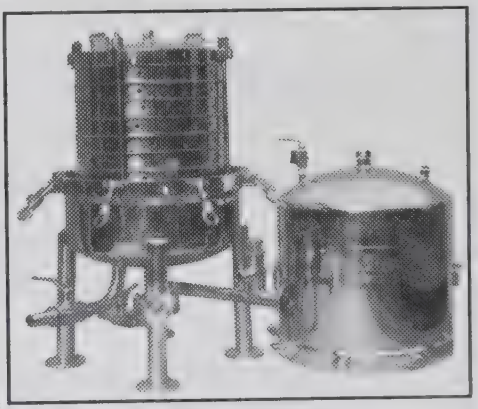


* The modern way to hermetically seal bottled products with Twist-off / vacuseal / Swage Seal Lug Caps to preserve taste and flavour.
* Lug Cup Sealer with latest technology eliminates the need of skilled worker. Effortless manual operation of replacing bottles one after another.
* Eliminates firm holding of glass bottles during capping operation, thus avoiding cut-wound in the event of bottle breaking.

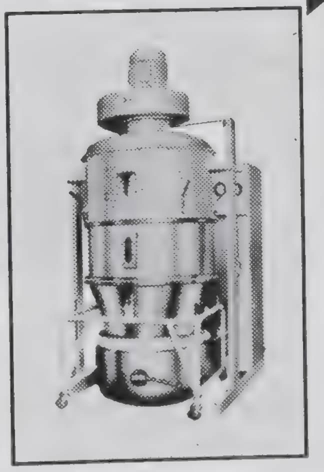
Marketed By:
RAJ PRODUCTS & EQUIPMENTS PVT. LTD.
P.O. Box - 8075, MUMBAI - 400 056. INDIA
Tel: 8162250 / 8162750, Fax: 91-22-8162750
email: foramfod@bom5.vsnl.net.in



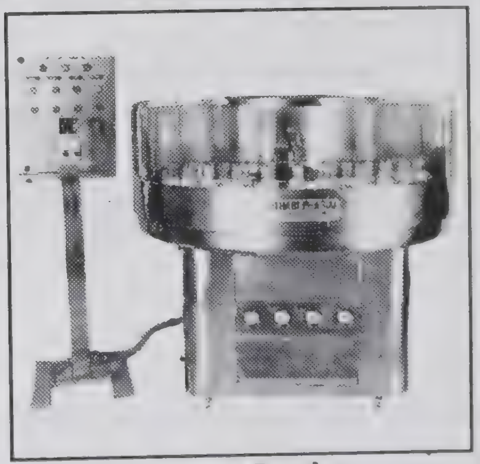
Filter Press standard model with back wash



Filter Press Zero hold up (Reverse flow) with back wash



Fluid Bed Dryer



Rotary Bottle Washing M/c.

kothari pharma

MFGS. OF MACHINERIES & EQUIPMENTS FOR PHARMACEUTICALS & CHEMICAL APPLICATIONS

C-11, M. K. BROTHERS IND. ESTATE, JARIMARI, ANDHERI-KURLA RD., ANDHERI (E), MUMBAI - 72. TEL. : 851 0837/2794/859 2888 FAX : 91-22- 851 3584
E-mail : chandrakant@kotharipharma.com Website : www.kotharipharma.com
Offices : Ahmedabad, Bangalore, Delhi, Hyderabad, Indore, Bangladesh.

GLOBAL MEGA EVENT, LARGEST IN THIS PART OF THE WORLD

INTERNATIONAL EXHIBITION AND BUSINESS SUMMIT

EXPLORE THE OCEAN OF AGRI-FOOD INDUSTRY

BANGALORE AGRI FOOD 2001

1ST TO 5TH DECEMBER 2001 BANGALORE (INDIA)

ORGANISER

wisitex FOUNDATION

in associaton with

GOVT. OF KARNATAKA

- MORE THAN 30, 000 Sq.. Mtr. AREA
- PARTICIPATION OF MAJOR COUNTRIES,
- MULTINATIONAL & NATIONAL ORGANISATIONS,
- CENTRAL & STATE GOVERNMENTS,
- PUBLIC & PRIVATE SECTOR INDUSTRIES,
- RESEARCH & DEVELOPMENTINSTITUTIONS,
- CONSULTANTS,
- HOTEL & HOSPITALITY INDUSTRY

GATHERING OF A VARIETABLE WHO - IS - WHO OF AGRI FOOD SECTOR

Special Attraction : Food Courts of Various Countries.

THRUST AREAS

- Agricultural products particularly sugar, pulses, edible oils,
- Horticultural products specially fruits,vegetables, flowers and species
- Maize and corn products
- Dairying and milk products
- Poultry
- Fisheries and Sea - food
- Biotechnology
- Food logistics - warehousing, godowns, refrigerated transport, cold storage's, etc.
- Wines, beers and liquors
- Bakery and confectionery including chocolates
- Beverages, tea, coffee and soft drinks
- Processing technologies & equipment
- Meat & Meat products (both cattle and sheep)
- Veterinary Sciences and Animal Husbandry
- Packaging technologies &equipment

Host Sponsor

KARNATAKA STATE
AGRO CORN PRODUCTS LTD

Gold Sponsor

एपीडा
APEDA

Silver Sponsors

The Global Green Company

MIR

BEJOIS

SyndicateBank
RELIABLE RESPONSIVE

Show Management

WECOM
Partner in Total Convergence

WORLD EXPO & CONVENTIONS MANAGEMENT LTD.
BANGALORE : No.88, Jeerige Building, 3rd Floor, 11th Cross,
Malleswaram, Bangalore - 560 003, Telefax- 91 - 080 - 3461598
Mobile: 9845108382
DELHI : Tel : 4324674, 4324676 Fax: 91 - 11 - 4314672
Email: wisitex@giasdl01.vsnl.net.in
Visit our website : www.wisitex.com

C0 - Sponsor

UN-APCTT
Asian and Pacific centre for Transfer of Technology

Official Host Hotel

ITC HOTEL
Windsor Sheraton
& Towers, Bangalore

A HEAT EXCHANGER IS A HEAT EXCHANGER...

So, what is different about ECOFLUX*?

The **ECOFLUX*** *Corrugated Tube Heat Exchanger* combines the best features of plain tube and plate heat exchangers, while overcoming the process limitations of both.Corrugation on the tube creates high turbulence resulting into high heat transfer co-efficient, while the tube geometry is ideal for high pressure applications.

Comparative advantages of ECOFLUX* CTHEs over conventional heat exchangers...

Advantages	Corrugated Tube Heat Exchanger	Shell & Tube Heat Exchanger	Plate Heat Exchanger
Heat Transfer Coefficient	High	Low	Very High
Uniform temperature distribution	Yes	No	Yes
Compact size	Yes	No	Limited
Ability to withstand high temp./high pressure	Yes	Yes	No
Gasket limitations	No	No	Yes
Maintenance cost	Low	Low	High
Processing of products with solid particles	Yes	Yes	No
Processing of highly viscous products	Yes	Limited	No
Ideal for aseptic processing	Yes	Limited	No

In technical collaboration with HRS Heat Exchangers Ltd., UK.

ASME H & U

TÜV CERT ISO 9002

PRAJ INDUSTRIES

Mr. V. Gokul Das, Product Manager
PRAJ INDUSTRIES LIMITED, Praj House, Bavdhan, PUNE-411 021 **Tel** (STD/ISD): +91 2139 52214/ 51511
Fax: +91 2139 51718/ 51515 **E-mail:** cthe@praj.net **Web:** http://www.praj.net

ECOFLUX*-Heat Exchangers for the 21st Century!

FOODTECH MALAYSIA 2002

27-30 JUNE PUTRA WORLD TRADE CENTRE, KUALA LUMPUR, MALAYSIA

THE MALAYSIAN INTERNATIONAL F & B, HOTEL, CATERING EQUIPMENT, INGREDIENT AND FOOD TECHNOLOGY EXHIBITION

THE ULTIMATE FOOD 'N FOOD TECHNOLOGY EVENT

Official Magazine:
食家

Sponsor:
南洋商报

Official Information Provider:
EUROMONITOR INTERNATIONAL
making sense of global markets

Official Publication:
FOOD

Supporting Publication:
BEVERAGE TODAY

In conjunction with:
THE 4TH WORLD CHAMPIONSHIP OF CHINESE CUISINE

India Representative:
Falcon Services
910 Prakash Deep, 7 Tolstoy Marg,
New Delhi 110001, India
Tel: 0091-11-3324288

Organised by
The World Association of Chinese Cuisine

Managed by:
The Malaysian Selangor And Federal Territory Ku Su Shin Choong Hung Restaurant Association

Sponsored by:
NATUREL
Maggi

Supported by:
TOURISM MALAYSIA
Malaysia Palm Oil Promotion Council

Exhibition Organiser:
TES
Trade-Link Exhibition Services Sdn Bhd (269279 - W)
No. 12A, 1st Floor, Jalan SS12/1B,
47500 Subang Jaya, Selangor, Malaysia.
Tel: (603) 5635 6086 • Fax: (603) 5635 6199
E-mail: tles@po.jaring.my
Website: www.trade-link.com.my

YES! **PRIORITY RESERVATIONS:** fax to **0091-11-332 3953**

We are interested ○ *to visit* ○ *to exhibit, please reserve* ________ *sqm.*

Name: ____________ Job Title: ____________
Company: ____________
Address: ____________
Postcode & Area: ____________ Country: ____________
Tel: ____________ Fax: ____________ Email: ____________

Attach Your Business Card Here

BFW - FTM 2002

FoodprO 2001

The 4th Indian Food & Food Technology Fair.
December 8 -11, 2001, Chennai.

FOODPRO 2001 - Highlights

• 4-Day International Exhibition • Technical Sessions & Technology Forums • Food & Beverage Retailing Showcase • Conferences & Investment Seminars • 150 plus Exhibitors Representing Food, Food Technology, Agro Dairy & related Food Businesses.

Sectoral Focus

• Food & Food Processing • Dairy • Agri Business & Agro Products • Bakery • Beverages, Confectionery & Grocery.

Exhibitors Profile

a) Equipments, Technology and Machinery for Food and Food Processing, Dairy, Poultry, Fruits & Vegetables etc.

• Processing • Packaging & Printing • Preservation
• Refrigeration & Cold Chain System
• Storage, Handling & Transportation

b) Processors, Manufacturers and Exporters

• Packaged & Processed Food • Frozen Food • Fruits & Vegetables
• Dairy Products • Marine Products • Meat Products
• Processed Fruits etc.

c) Hotel & Kitchen Equipments

d) Government and Government Agencies (State & Central Govt.)

e) Commodity Development Boards & Export Development Agencies and Others.

Parallel Events (Planned)

• Fruit Pavilion • Fresh Juice Pavilion • Coffee Festival • Tea Tamasha • Pizza Fest • Food & Beverage - Retail / Showcase and more......

Exclusive State-Governments Pavilion

210202

Exhibition Details

Date: December 8-11, 2001.
Venue: ITPO Chennai Trade Centre.
Timings: 1030 - 1830 Hrs.

Participate to generate Contacts & New Business

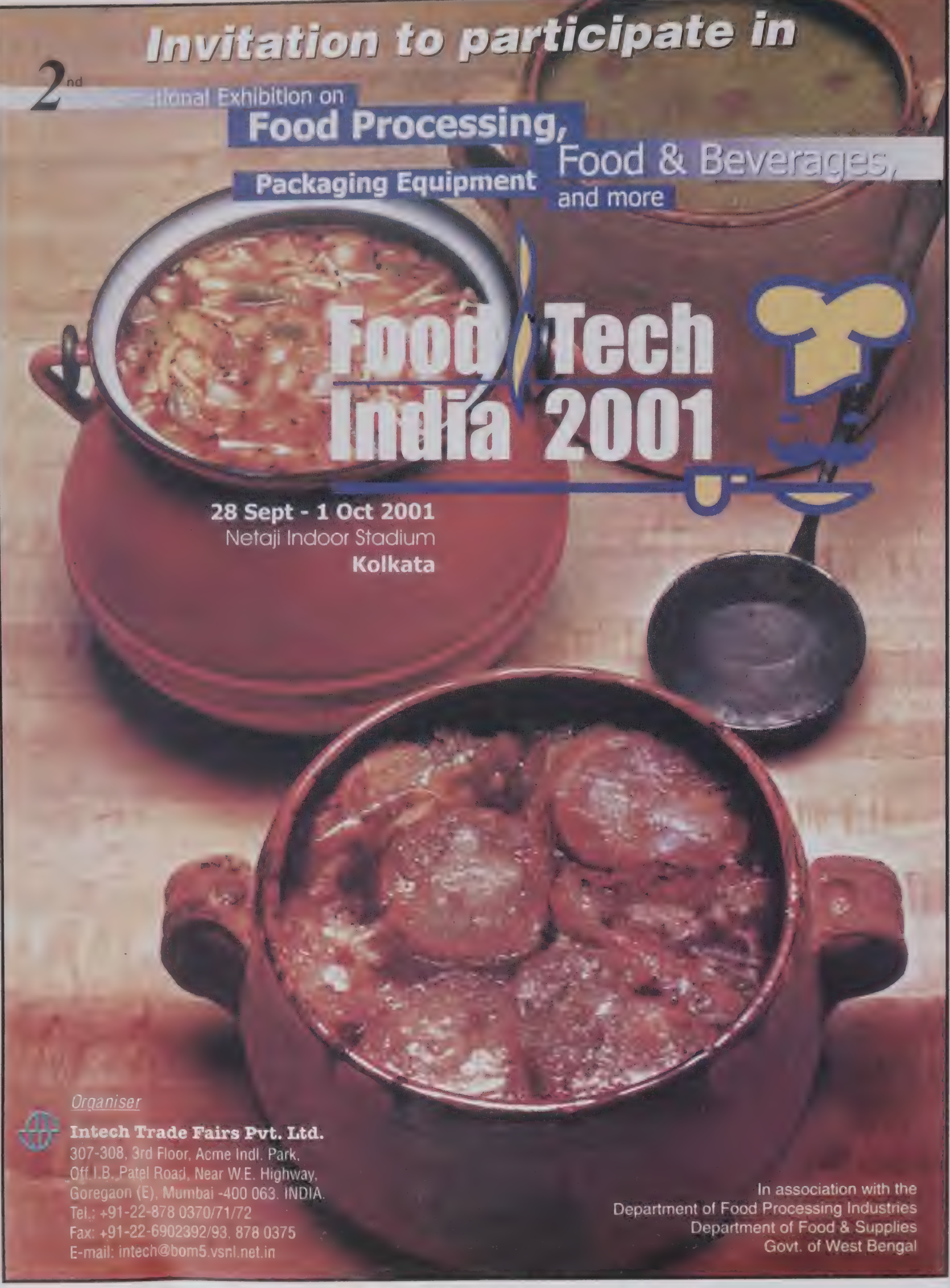
For further details, contact J.Shanker / K.S.V.Kuppuswamy

CII

Confederation of Indian Industry
Business Fairs Division, 35/1, Abhiramapuram 3rd Street,
Alwarpet, Chennai - 600 018, India.
Ph: 91-44-4987648 / 49 / 4660571 / 0570 / 1311 / 0291 / 0773.
Fax: 91-44-4660312.
Email: j.shanker@ciionline.org / v.kuppuswamy@ciionline.org

Food & Processing • Dairy • Meat & Poultry • Beverages • Bakery & Confectionery

INDIA'S MOST COMPREHENSIVE FOOD EVENT



Invitation to participate in

2nd International Exhibition on

Food Processing, Food & Beverages,

Packaging Equipment and more

Food Tech India 2001

28 Sept - 1 Oct 2001
Netaji Indoor Stadium
Kolkata

Organiser

Intech Trade Fairs Pvt. Ltd.
307-308, 3rd Floor, Acme Indl. Park,
Off I.B. Patel Road, Near W.E. Highway,
Goregaon (E), Mumbai -400 063. INDIA.
Tel.: +91-22-878 0370/71/72
Fax: +91-22-6902392/93, 878 0375
E-mail: intech@bom5.vsnl.net.in

In association with the
Department of Food Processing Industries
Department of Food & Supplies
Govt. of West Bengal

INDIAN
TRADE FAIRS & CONFERENCES

KISAN 2001
Venue: Bangalore
Date: 18-21 October, 2001

India's largest agri show **Kisan** 2001 will be held at Bangalore. At **Kisan**, the farmer is the focus. Today's farmer is more knowledgeable and more demanding than ever. The need for information brings them to **Kisan** exhibitions. As the largest agri show in India, **Kisan** offers an overview of the latest products, services, research and development, technology advancements, trade news and business opportunities in Agriculture.

Kisan is an opportunity to start a dialogue and establish a fruitful relationship with the farmer and agri trade at large.

For more details contact:

Deccan Exhibitions Pvt. Ltd., No. 57/2, 11th Main Road, Malleshwaram, Bangalore 560 003, India. Tel: 080-3316330, 98451-72383, Fax: 080-3316330, Email: bhavani@kisan. com, 1170/17B, Shivajinagar, Pune 411005, India. Tel: 91-20-553600, 5537434, Fax: 91-20-5536301, Email: fair@kisan.com

AHAR 2001
Venue: Ahmedabad
Date: 1st - 4th Nov., 2001

'**AHAR 2001**' provides an unique opportunity for fresh, frozen and processed food products, food processing machinery and equipment, refrigeration machinery and equipment, packaging material and machinery requisites for hotel, kitchen and catering equipment, utilities, furniture, decoratives etc.

Exhibitor's profile: • Food Products • Food Processing • Machinery and Equipments • Hotel, Restaurants and Catering Products/Equipments • General

For more details contact:

Insite Exhibition Organiser, 18, 1st Floor, Empire Tower, Nr. Associated Petrol Pump, C.G. Road, Ahmedabad 380006. Tel: 079-6449837, 6562080, Fax: 079-6449301, Email: ahar2001@ insite-exhibition.com, Website: www. insite-exhibition.com

BANGALORE AGRI FOOD 2001
Venue: Bangalore
Date: 1st-5th Dec., 2001

Organised by Wisitex Foundation in association with the government of Karnataka, Bangalore Agri Food 2001 will provide unique platform to technology producers and potential investors to forge industrial and business partnership on a sustainable basis. The exhibition has 3 distinct segments that will make the show technology oriented, market relevant and business specific for all thrust areas of this Mega Event.

International exhibition will be a platform to display finished products, machinery, systems, packaging, plants, raw materials and also to meet joint venture partners. It will enable local and international business alliance, effect technology transfer and boost export-import tie ups.

International seminars will enable world leaders to interact and discuss on trade, technologies update, laws, policy frame work etc.

Corporate presentation will directly focus on latest technological developments in Agri and Food Industry products and systems offered

For more details contact:

Ms Ritu Nehra, Camp Office No 88, Jeerige Building, 3rd Floor, 11th Cross, Malleswaram, Bangalore 560 003. Tel/Fax: 080-346 1598, Email: mukesh177-us@yahoo.com

FOODPRO 2O01
Venue: Chennai
Date: 8-11 December, 2001

Organised by Confederation of Indian Industry (CII) **FOODPRO 2001** – India's flagship & premier Food Business Event is a comprehensive business fair featuring a 4-Day International Exhibition & Conference on Food Industry, and will highlight and showcase the tremendous opportunities across the entire Agricultures, Food and Dairy Chain.

FoodPro 2001 – The Highlights: • 4-Day International Exhibition • Conferences & Investment Seminars • Technical Sessions & Technology Forums • Parallel Events & Food Festivals • Exclusive State Government Pavilion • 150+Exhibitors.

FoodPro 2001 – Opening Markets: Market opportunities across the entire Agri/Food chain by way of Investments, Joint Ventures, Technology Transfers with Indian Companies or Exporting to India for • Modernisation of the Food Chain • Agri-Inputs (High Yielding Seeds, Processing Varieties) • Agriculture (Farming Techniques, Inputs, Basic Mechanism) • Procurement & Storage (Material Handling, Packaging, Cold Chains, Transportation, Grading Systems) • Processing (Large Scale Facilities, Processing and Packaging Machinery & Technologies) • Retailing (Cold Chains, Retail Outlets) • Exports of Food & Agricultural Products including Processed & Packaged Foods.

The **FoodPro 2001** Exhibition will attract all the players in the Agriculture, Food, Dairy Businesses from all over India including Food Processors, Retail Chains, Hotel & Restaurants, Importers who would be using the Exhibition as a forum to source new Technologies, Equipments, Packaged & Processed Food and Dairy Products as well as fresh agro producers.

Exhibition Profile: Technologies, Equipments & Systems: Food Processing Equipment, Preservation Systems, Refrigeration Technology, Packaging Systems, Beverages, Processed Frozen Foods, Dairy Equipment & Technology, Dairy Products, Poultry Equipment and Technology, Poultry Products, Automation & Control Systems for Food Processing Equipments, Printing & Packaging, Storage and Handling Asceptic Facilities.

Food Products: Processed & Frozen Foods, Packaged Foods, Beverages – Tea, Coffee, Alcoholic & Non-Alcoholic Beverages. Dairy Products – Milk, Butter, Ice Cream, Cheese, etc., Horticulture Products.

FoodPro 2001 Conferences: CII will be organising a host of International Seminars and Conferences in areas such as bio-technology, water manangement, food processing, livestock, cold chain technologies, IT & agriculture, agri-infrastructure, agro-packaging, WTO & agriculture and food laws.

For more details contact:

Confederation of Indian Industry Business Fairs Division, 35/1, Abiramapuram, 3rd Street, Alwarpet, Chennai 600018. Tel: 0091-044-4987648, 466 0571/0291/0773, Fax: 0091-044-4660312, Email: j.shanker@ciionline.org / v.kuppuswamy@ciionline.org

3RD IDFT EXPO 2001
Venue:
World Trade Centre, Mumbai

Due to unavoidable circumstance the IDFT Expo 2001 which was scheduled to be held in November 2001 in Mumbai has been postponed to a later date.

The fresh dates will be announced by organisers shortly.

FOODTECH 2001

Venue: Kolkata

Sept. 28 – Oct. 1, 2001

FoodTech India 2001 is organised by Intech Trade Fairs Pvt. Ltd. and sponsored by Department of Food Processing Industries, Government of West Bengal.

The need of the hour is development of food processing and preservation technology to avoid wastage due to perishable nature of foodstuffs. **Foodtech India 2001** aims at highlighting the technologies and equipment for this purpose, as well as the variety for foodstuffs and beverages available in the country.

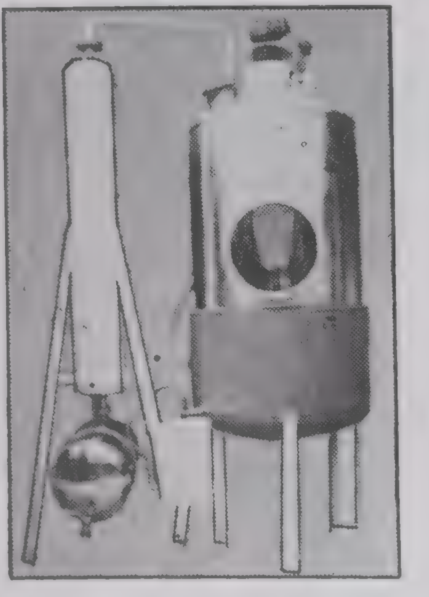
Scope of the Exhibition: • **Food:** All kinds of Food products and Beverages • Dairy products, Soft Drinks, Mineral Water, Health Drinks, Fruits, Vegetables and Nutritious Food (Processed/Packed) • **Food Ingredients:** Food Grains, Edible Oil, Spices. Essences, Coloring and Additives and Readymade Masala, Dry Fruits, etc. • **Machinery & Equipment:** Food Processing, Food Packaging, Food Preservation and Storage, Cold Storage Systems, Refrigeration, Dispensing Equipment, Air and Water Pollution Control Equipment • **Kitchen & Domestic Appliances:** From Ovens, Grills, Mixers etc. to Soda Makers, Microwaves etc. • **Hotel & Restaurant:** Equipment and Table Wares • **Facilitators:** Banks and Financial Institutions, R & D Institutes, Trade Associations, Govt., Agencies, Export Promotion Councils, etc.

For more details contact:

INTECH TRADE FAIRS PVT. LTD.
307-308, 3rd Flr., Acme Indl. Park
Off. I.B. Patel Road
Near W.E. Highway, Goregaon (E)
Mumbai 400 063.
Tel: 878 0370 / 71 / 72
Fax: 022-6902392 / 93, 8780375
Email: intech@bom5. vsnl.net.in

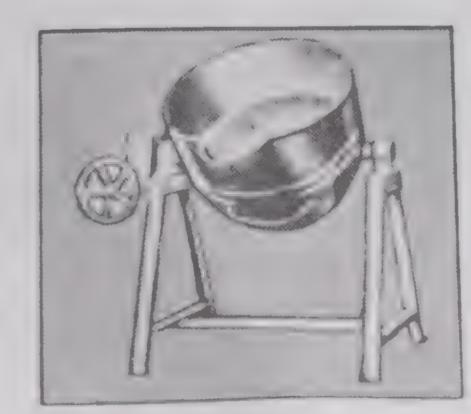
GEETA FOOD ENGINEERING

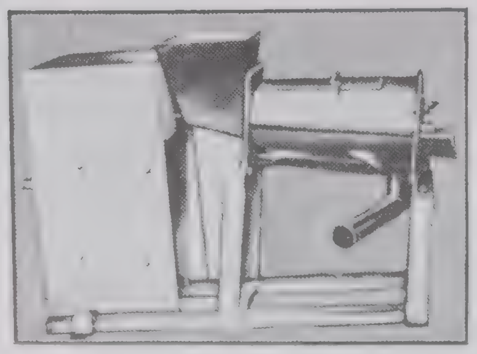
Manufacturers of Food Products Equipment & Fabricators


VACUUM EVAPORATED UNIT

RIBBON BLENDER

- STEAM JACKETED KETTLE
- PULPER CUM FINISHER
- PAPAYA CUBING UNITS
- PINEAPPLE SLICING MACHINE
- JUICE EXTRACTORS
- FRUIT AND VEGETABLE CRUSHER
- PICKLE FILLING MACHINE (New Design)
- BOTTLE WASHING & FILLING MACHINE
- EXHAUST BOX
- BABY BOILER
- S.S. TOP TABLE & S.S. TANKS
- CENTRIFUGE MACHINE
- VACUUM EVAPORATED VESSELS
- RIBBON / CONICAL BLENDER
- PADDLE / SIGMA MIXER


STEAM JACKETED KETTLE


PULPER

GEETA FOOD ENGINEERING
Plot No C-7/1, TTC Area, Pawane MIDC,
Thane-Belapur Road, Behind Savita Chemical,
Navi Mumbai - 400 705.
Tel: 790 6450, 790 6451, 761 0907
Telefax: 790 6451 (R) 754 8018

Food Tech India 2001

Kolkata
September 28 –
October 1, 2001

LIST OF PARTICIPANTS

(Booked as on September 17, 2001)

AAREM FOODS PVT. LTD.
107, Rasulgarh, Bhubaneshwar 751 010. Orissa
Tel: 0674-580963/585309 (F): 467506
Fax: 0674-583137
Exec: Sambit Kar (Mng. Dir.)
Pr: * Food Product (FMCG)

ADVANCED INDUSTRIAL MICRO SYSTEM
201, Triumph Indl. Estate, Pandit Motilal Nehru Marg, Behind Patel Aluminium, Mumbai 400 063
Tel: 8766351, 8756353 * Fax: 8766352
Pr: * Batch Coding / Printing / Marking Machines

AGARAM INDUSTRIES
126, Nelson Road, Aminjikarai, Chennai-600 029, Tamil Nadu
Tel: 044-3741413 * Fax: 044-3741529
Email: agaram@vsnl.com
Exec: R. Madhavan (Sales Mgr.)
Pr: * Pasta making machines * Cooker * Extruders etc.

AGRICULTURAL & PROCESSED FOOD PRODUCTS EXPORT DEVELOPMENT AUTHORITY (APEDA)
N.C.U.I. Building, 3rd Floor, 3 Siri Institutional Area, August Kranti Marg, New Delhi - 110 016
Tel: 6513204/4572/3219 * Fax: 6513167
Email: headq@apeds.com
Exec: Tarun Bajaj (Mgr.)
Services: * Export Promotion

AGRO INDIA
#274, V.R. Manor, 100 Feet Road, Indiranagar, Bangalore - 560 038
Telfax: 5259769
Email: agroindia@vsnl.com
Pr: * Food Journal

AIFSO ENTERPRISES
A1-Veena Beena Apts., Sewri (West), Mumbai - 400 015
Tel: 022-4130926, 4140292 * Fax: 4137330
Email: smipl@satyam.net.in
Exec: Asfaque Khan (Dir.)
Pr: * Biscuit plant-fully automatic

AJANTA FINE FOODS PVT. LTD.
121/34A, J.N. Mukherjee Road, Howrah, West Bengal - 711 007
Tel: 655-5355 * Fax: 91-33-6745086
Email: ajantaff@rediffmail.com
Exec: Subrata Gunguly (Area Mgr.)
Pr: * Pickles * Jam * Squash etc.

BAJORIA APPLIANCES PVT. LTD.
46, B.B. Ganguly Street, Kolkata 700 012
Tel: 2219219, 2379168
Email: bajoria@mantraonline.com
Pr: * Vaccum Cleaner * Water Purifier * Electric Chimney etc.

BEE-HIVE CORPORATION LTD.
5, Iswar Mill Lane, Kolkata - 700 006
Tel: 5431413 * Fax: 5545741
Email: bhc001@rediffmail.com
Exec: A. Sengupta (Sales Mgr.)
Pr: * Ghee

BHARAT GENERAL AGENCY
55/4, Canning Street, Kolkata - 700 001
Tel: 221-8420 * Fax: 284-2274
Email: bharat_ga@yahoo.com
Exec: Md. Khalid (Prop.)
Pr: * Imported Chocolate

BHARAT KERNELS PVT. LTD.
24-B, B.L. Saha Road, Kolkata - 700 053
Tel: 4000552/3676 * Fax: 4663244
Exec: M.P. Chowdhury (Mktg. Adviser)
Pr: * Prutina Peanut Butter & other processed foods

BHARAT MARGARINE LIMITED
White House, 119 Park Street, Kolkata-700016, West Bengal
Tel: 2297353 * Fax: 2297358
Email: margarin@giascl01.vsnl.net.in
Website: www.bharatmargarine.com
Exec: Supriya Sengupta (Sales Mgr.)
Pr: * Dairy Products

CHAMRIA ENTERPRISES
133, Cotton Street, 3rd Flr., Kolkata 700007
Tel: 2392506/2385084
Website: www.chamria.com
Exec: Rajesh Chamria (Prop.)
Pr: * Ayurvedic Pachak & other Digestive Pachaks

COCA-COLA (I) LTD.
P-43, Taratala Road, Kolkata - 700 066
Exec: Debiyoti Batabyal (Area Sales Mgr.)
Pr: * Drinking Water * Cocacola

COFFEE BOARD
P.B. # 5366, Bangalore 560 001
Tel: 080-2255557
Exec: Shahjahan (Dir. of Promotion)
Pr: * Coffee

COMPUTYPE MEDIA
208-209, IJS Place, Delhi Gate Bazar, New Delhi 110 002
Tel: 3284148, 3259312 * Fax: 011-3285749
Email: info@pfionline.com
Exec: Nadim Akbar (Buss. Mgr.)
Pr: * Food Magazine

CONGAS FOOD SERVICE EQUIPMENT PVT. LTD.
4, Krishna Pur Road, Dum Dum, Kolkata-700028, West Bengal
Tel: 4639440/4651230 * Fax: 4639347
Email:. congas@cal2.vsnl.net.in
Exec: S. Das (Mgr. Business Devlp.)
Pr: * Commercial Kitchen Equipment * Refrigeration & Bakery products

COOKME (SPICE) PVT. LTD.
38, Kali Krishna Tagore Street, Kolkata-700007, West Bengal
Tel: 2396548/2180863 * Fax: 2180753
Email: dspice@cal3.vsnl.net.in
Pr: * Spices * Papads & other Snack Foods

CORAL SOFTWARE
Kolkata
Tel: 2375091
Services: * Business Accounting Software

D.P. AGRO MILLS PVT. LTD.
146A, Cotton Street, Kolkata - 700 066
Tel: 2314979 * Fax: 2306771
Emailk: dpagro@dte.vsnl.net.in
Exec: Rash Mohan Saha (Gen. Mgr.)
Pr: * Edible Oil

DEPARTMENT OF FOOD PROCESSING INDUSTRIES & HORTICULTURE
Mayukh Bhavan, Salt Lake City, Kolkata-700091, West Bengal
Tel: 3372918, 3218239 * Fax: 337 2922
Exec: C.R. Bandhyopadhyay
Pr: * Food Processing & Horticulture

DIRECTORATE OF MARKETING AND INSPECTION
(Deputy Agricultural Marketing Adviser)
A-wing, 4th Floor, CGO Complex, D.F. Block, Sector-1, Saltlake, Kolkata - 700 064
Tel/Fax: 3340845
Email: dmical@wb.nic.in
Pr: Food Products

ENGINEERS INDIA RESEARCH INSTITUTE
449, Nai Sarak, Main Road, New Chandani Chowk, New Delhi - 110 006
Tel: 011-2918117/6431/2920361
Fax: 011-2916431
Email: erisidi@bol.net.in
Website: www.eikotech.com
Exec: Sudhir Gupta (Dir)
Services: * Project Report

EUMARK INDIA
3/1, Mangoe Lane, 1st Floor, Kolkata - 700 091, West Bengal
Tel: 2484233
Exec: Satyajit Roy (Ptr.)
Pr: * Home Appliances

FLEX ALLOYS PVT. LTD.
228-A, Chittaranjan Avenue, Kolkata-700 006, West Bengal
Tel: 2191812, 2414334 * Fax: 2414334

Email: flexall@vsnl.net
Exec: Shyam Jhunjhunwala (Dir.)
Pr: * Flexible Packaging Material

FOIL FORMS
522, Parnasri Pally, Behala, Kolkata-700060, West Bengal
Tel: 4519305 / 7700 * Fax: 4516868
Email: strling@caltiger.com
Exec: Deepak Chetani (Prop.)
Pr: * Foil Sealing lids & Seals for PET Jars / PP Jars/Glass Strips for Packing Tablets/ Capsules/Food Pouches

FORETELL CAPITAL TRUST PRIVATE LIMITED
3530, 13H Main 1 Cross Road, Hal II Stage, Indiranagar - 560006, Bangalore
Tel: 080-5276152
Email: foretell@vsnl.com
Exec: Rajib Saha
Services: Financial Services

GARDEN FRESH
Mangal Jyoti, 227/2, A.J.C. Bose Road, Kolkata - 700 020, West Bengal
Tel: 2475826
Exec: Arun Goenka (Prop.)
Pr: * Saffron

GEMINI DATA LOGGERS (I) PVT. LTD.
404, Opal Square, B/h Hotel Express, R.C. Dutt Road, Vadodara, Gujarat 390 007
Tel: 91-265-323756, 323757
Fax: 91-265-300980
Email: snagarsheth@geminidataloggers.com
Website: www.geminidataloggers.com
Exec: Sandeep Kumar Murarka (Prop.)
Pr: * Miniature Battery Powered Data Loggers, Tiny Tag Series

GITA MERCANTILE
13, Pollock Street, 1st Flr., Kolkata 700001
Tel: 2355543/7390 * Fax: 91-33-2357394
Email: gitamrcantile@e-mail.com
Exec: Pradip Narula
Pr: * Food Products

GLEN KITCHEN CHIMNEY
15, Free School Street, Kolkata 700 016
Tel: 2451185, 2216451 * Fax: 2216451
Exec: Navin Chawla (Dir.)
Pr: * Home Appliances

GREEN FIELD PRODUCTS
Kaikhali Chirisji More, P.O. -R- Gopalpur, 24 Parganas (N), West Bengal
Tel: 5739790 * Fax: 2417742
Email: greenfieldpro@hotmail.com
Exec: Mrs. R Arora (Prop.)
Pr: * Food Products

HALDIRAM BHUJIAWALA LTD.
P-420, Kazi Nazrul Islam Avenue, (V.I.P. Main Road), Tegharia, Kolkata - 700 052
Tel: 5290511 (8 Lines)
Fax: 5595093
Email: prabhu@cal.vsnl.net.in
Pr: * Food Display, Softy & Other Ice Cream vending Machines * Snack etc.

HARSH IMPEX
71/D, N.S. Road, Gupta Mansion, Kolkata-700 001, West Bengal
Tel: 2433498/3695 * Fax: 2101457
Email: poddar11@vsnl.com
Exec: Sanjay Kr. Poddar (Ptr.)
Pr: * PET Containers

HINDALCO INDUSTRIES LTD.
Birla Building, 9/1, R.N. Mukherjee Road, Kolkata 700 001, West Bengal
Tel: 2200464 * Fax: 2200214
Email: pmukharjee@adityabirla.com
Pr: * Hindalco Wrap & Packaging Equipment

HEC EQUIPMENT & MACHINES LTD.
A-3, Minoo Minar, Veera Desai Road, Andheri (W), Mumbai 400 053
Tel: 6322953, 6319903
Fax: 91-22-6326864
Email: info@hecpolis.com
Website: www.hecpolls.com
Pr: * Equipment & Machines

IND. EQUIP. MARKETING & CONSULTANCY SERVICES
18, Netaji Subhas Road, 3rd Floor, Kolkata - 700 001, West Bengal
Tel: 2205829 * Fax: 3590337
Email: iemcs@vsnl.net
Exec: Achin Ghosh (Prop.)
Pr: * Industrial Cleaning Equipments

J.K. SPICES & FOOD PRODUCTS
22, Amratolla Street, Kolkata - 700 001
Tel: 2350255, 2351845 * Fax: 235 0255
Exec: Ashoke Jain (Prop.)
Pr: * Spices

JIGGIS FOOD SERVICES (P) LTD.
5, Bawali Mondal Road, Kolkata 700026
Tel: 4667113 * Fax: 466 6648
Email: jiggis@hotmail.com
Exec: Sandip Nawalakha (Dir.)
Pr: * Packed Foods * Sweets * Snack

K.C. DAS PVT. LTD.
Sree Ramkrishna Lane, Kolkata 700003
Tel: 5541348/5540431 * Fax: 5337998
Exec: B.B. Kar (Chief Exe.)
Pr: * Sweets etc.

MAHARAJA WHITELINE
13/11, East Patel Nagar, New Delhi 110008
Tel: 1044-5853198/4199/0839
Fax: 011-5747189
Email: anitakum@grasdl01.vsnl.net.in
Exec: Swapan Ghosh
Pr: * Home Appliances

MOTHER DAIRY CALCUTTA
P.O. Dankuni Coal Complex, Dist. Hooghly-712310, West Bengal
Tel: 6592338 * Fax: 6594223
Pr: Dairy Products

NATIONAL HORTICULTURAL BOARD
Flat # 85, Institutional Area, Sector - 18, Gurgaon, Haryana - 122 015
Tel: 0124-342992, 342989
Fax: 342990
Email: nhbmic@wb.nic.in
Exec: B.K. Murthy
Pr: * Horticulture Products

NATIONAL PANASONIC
C/o-Europa Sales & Services, 171/B, Rash Behari Avenue, Kolkata - 700 019, West Bengal
Tel: 4601686 * Fax: 4733282
Exec: Prasanta Mukherjee (Ptr.)
Pr: * Cooking appliances / Home Appliances etc.

NEPAL THAI FOODS PVT. LTD.
Chaudhary House, Sanepa, P.O.Box 1073, Kathmandu, Nepal
Tel: 00977-1-521994
Fax: 00977-1-523818
Email: cghonp@mos.com.np
Exec: Vivek Khemka (Liaison Officer)
Pr: * Noodles and Snack Products

NILKAMAL CRATES & BINS
Nilkamal House, MIDC, Mumbai 400 093
Tel: 8361366, 8211172
Fax: 8367891
Email: cratessales@nilkamalplastics.com
Pr: * Plastic Bins & Crates

NORCOOL INDIA PVT. LTD.
Plot # 26A, Sector-3, IMT Maneswar, Gurgaon - 122 050
Tel: 0124-6290681/89
Fax: 0124-6290690/91
Exec: Sanjay Agarwal (Sales & Service Engg.)
Pr: * Glassdoor Refrigerators (VISI Coolers)

PAUL BISWAS & CO. PVT. LTD.
55/2, B.R. Basu Road, (Canning Street), Kolkata - 700 001, West Bengal
Tel: 2353905, 2357593
Fax: 3558264
Email: snb@satyam.net.in
Exec: Somnath Biswas (Dir.)
Pr: * Pickles * Alfoil etc.

POTATO KING FOODS LTD.
WBIIDC Growth Center, Birshibpur, Howrah, West Bengal
Tel: 4649271 * Fax: 4404921
Email: enquire@potatokingfoods.com
Exec: Murarka (Dir.)
Pr: * Potato Flour / Flakes / Powder etc.

PREMI BROTHERS
29, Mullick Street, Kolkata - 700 007
Tel: 2311774
Exec: Pawin Jain
Pr: * Supari * Churan

PUJA UDYOG
33/1, N.S. Road, Room # 777, Marshal House, Kolkata - 700 001
Tel: 221 4606 / 4236 * Fax: 2214606
Email: salil@cal.vsnl.net.in
Exec: Salil Ghosh (Mgr.)
Pr: * Imported Confectionery

R&D ENGINEERS
A41, IDA Kukatpally, Phase-II, Road # 4, Via Gandhi Nagar (I.E.), Hyderabad - 500 037
Tel: 3079121, 3079878 * Fax: 3078668
Email: randengg@hd1.vsnl.net.in
Exec: Deepak Pamnani (Ptr.)
Pr: * Baking Machines for Cream Wafer, Biscuit & Ice-Cream Cones

S.K. INDUSTRIAL CORPORATION
77, N.S. Road, Room No. S-5, 4th Floor, Kolkata - 700 001, West Bengal
Tel: 2413332 * Fax: 3589386
Email: skicorp@vsnl.com

ec: Amit Bajoria (Prop.)
: * Oriental Spices * Italian Breadsticks
c.

R. MARKETING & SERVICES
, Raja Subodh Mullick Square,
lkata- 700 013, West Bengal
l: 2375641 * Fax: 8310548
ec: S. Roy Chowdhury (Prop.)
: * Pickles * Tea * Spice etc.

ATELLITE PLASTIC INDUSTRIES
A2 Court Chambers, 35, New Marine
nes, Mumbai - 400 020
l: 022-2006477/2007883
x: 91-22-2006556
mail: satellite@vsnl.com
ec: R.C. Sanghavi
: * Pasta Machines

AURABH ENGINEERS
, Upvan Society, N.R. Shyamal, 3-B
pp. 132 Feet Ring Road, Satellite,
nmedabad - 380 051, Gujarat
el: 2740288, 2732428
ax: 91-79-6765115, 2740288
mail: indvac@ad1.vsnl.net.in
ebsite: www.indvac.com
xec: D.G. Trivedi (Prop.)
: * Vacuum Packaging Machines * Nitro-
en Flushing Machines * Shrink
rapping Machines * Impulse/Hotbar
ealers * Special Pneumatic Long
ealers * Continuous Sealers * Vertical
ealers

ETHIA OILS LTD.
India Exchange Place, Kolkata 700001
el: 220 1001 / 5055 * Fax: 220 0248
mail: sethiaoils@vsnl.com
xec: Debabrata Goswami
r: * Edible Oils

HV Energy North East Limited
Super Gas)
0 Raja Basanta Roy Road, Kolkata -
0 029, West Bengal
el: 4643512 * Fax: 6461546
xec: Ms. Aditi Mitra
r: LPG

HALIMAR CHEMICAL WORKS LTD.
2E, Alipore Road, Kolkata - 700 027
el: 479 3166 / 2169 * Fax: 4793557
mail: scwical@cal3.vsnl.net.in
xec: R.K. Pathak (Sr. Mgr.)
r: * Shalimar's Coconut Oil * Chef Spices
tc.

HAM AGENCIES
-314, 7, B.R.B. Road, Kolkata - 700 001
el: 2342999 * Fax: 2151925
xec: Sandip Kapur (Ptr.)
r: * Home Appliances

HREE CHATURBHUJ
NTERNATIONAL PVT. LTD.
-632, Sarita Vihar, New Delhi - 110 004
Tel: 011-6941270/8337 * Fax: 6946954
Exec: S.M. Ahmad(Gen. Mgr. - Mktg.)

SHUB FLAVOURS OF INDIA
102-105, Nar Vivek Industrial Estate,
Mogul Lane, Mahim, Mumbai - 400 016
Tel: 4466671, 4467983
Fax: 022-4469023
Email: scwical@cal3.vsnl.net.in
Exec: P.R.V. Subramaniam (Ptr.)
Pr: * Flavours

SPICES BOARD
Sugandha Bhavan, N.H. By-pass, P.O. No.
2277, Palarivattom P.O., Cochin 682026
Tel: 484-333610-16 * Fax: 0484-331429
Email: sbhochn@giasmd01.vsnl.net.in
Website: www.indianspcies.com
Pr: * Spices & Spices products

SUNBEAM MACHINES INDIA (P) LTD.
Plot No. 583, VVN Colony, Kukatpally,
Hyderabad - 500 072
Tel: 040-3062778/08
Exec: Shreedhar

SUPERFINE GROUP OF COMPANIES
335, Jodhpure Park, Kolkata - 700 068
Tel: 4836538, 4141812 * Fax: 4141814
Email: superfine1008in@yahoo.com
Pr: * Oil * Atta * Maida * Suji * Besan etc.

TAMILNADU TEA PLANTATION CORPORATION LTD.
No. 52, Veera Badram Street, Nungambakkam, Chennai - 600 034
Tel: 8265509, 8284187
Pr: * Tea * Pepper * Cardamon etc

TATA TINPLATE LTD.
43, Jawaharlal Nehru Road, Kolkata-
700071, West Bengal
Tel: 2248453 * Fax: 2881758
Email: rajivseth@tatasteel.com
Exec: Rajiv Seth
Pr: * Food Packaging

THE AMALGAMATED PRESS
Narang House, 41, Ambalal Doshi Marg,
Mumbai 400 001
Tel: 2650268/4184 * Fax: 2641275
Email: dasilva@vsnl.com
Pr: * Processed Food Publication

THE ORISSA STATE COOPERATIVE MILK PRODUCERS' FEDERATION LTD.
D-2, Sahid Nagar, Bhubaneswar 751007
Tel: 0674-404273/404576
Fax: 0674-506974
Email: omfed@dte.vsnl.net.in
Pr: * Milk & Milk Products

THE TRIPURA SMALL INDUSTRIES CORPORATION LTD.
33, Office Lane, Agartala - 799 001,
Tripura
Tel: 2425961/6999
Exec: B.P. Soni (Liason Officer)
Pr: * Fruit Products etc.

TIMES FOOD PROCESSING JOURNAL
Mumbai

TRIPTI BISCUIT & LOZENGE CO.
156/157 Ahiritola Street, Kolkata 700 005
Tel: 2395676/2305103
Exec: Satya Gopal Saha (Ptr.)
Pr: * Bakery Products

TRISNA AQUACULTURE INDUSTRIES
61/1, Pratapaditya Road, Kolkata 700026
Tel: 4646499 * Fax: 4638258
Email: trishnafoods@rediffmail.com
Exec: Manish Gaur (Mktg. Exec.)
Pr: * Processed Food * Pickles * Mineral
Water

TUPPERWARE INDIA PVT. LTD.
GD-206, Sec-II, Salt Lake City, Kolkata-
700 091, West Bengal
Tel: 3598661
Email: yassimikichlu@tupperware.com
Exec: Mrs. Yassmin Kichlu
Pr: * Food Containers

UNITED SALES AGENCY
174C, Jamuna Lal Bajaj Street, Gr. Floor,
Kolkata - 700 007, West Bengal
Tel: 2382495
Exec: Sandeep Kumar Murarka (Prop.)
Pr: * Storage & Material Handling, Plastic
Crates

VALUE BASE PUBLICATION
11, Gayatri Apartments, 128, Charkop
Sector II, Kandivali (W), Mumbai 400 067
Tel: 8697956 * Fax: 6240502
Pr: * Food Journal

VEMPENY ASSOCIATES
204/1B, Linton Street, Kolkata - 700 014
Tel: 2451718, 2464549
Exec: Abraham S. Vempeny
Pr: * Mr. Butler's Soda makers * MS Lizz
Soft drink concentrates

WAREE INSTRUMENTS LTD.
36, Damji Shamji Indl. Complex, Off.
Mahakali Caves Road, Andheri (E),
Mumbai - 400 093
Tel: 820 4778 * Fax: 8321273
Email: waaree@waaree.com
Exec: Sanjay Brahman (Gen. Mgr.)
Pr: * Instruments: Pressure Flow/
Temperature/Level, Valves, Switches,
Flowmeters, Transmetters, Manometers

WEST BENGAL FOOD PROCESSING DEPARTMENT
Kolkata
Services: * Technical Know How

WEST BENGAL FOREST DEVELOPMENT CORPORATION LTD.
6A, Raja Subhodh Mullick Square, 7th
Floor, Kolkata - 700 013
Tel/Fax: 2365202
Exec: S. Mukherjee (Div. Mgr.)(Mktg. Div)
Pr: * Moulban Honey

When Replying to Advertisements, Please Mention
BEVERAGE & FOOD WORLD

INTERNATIONAL TRADE FAIRS & CONFERENCES

FIRST HALAL FOOD CONFERENCE AND SAUDI EXHIBITION

Venue: Riyadh, Saudi Arab

Date: 24th - 27th Sept., 2001

Promosalons, the French Trade Promotion Council, in collaboration with the Government of Saudi Arabia, is organising the first Halal Food Conference & Saudi Exhibition in Riyadh between the 24th and 27th of September 2001. The Conference shall be graced by over 1000 food and beverage professionals from across the globe, dealing not only in Halal meat, but also various other food and beverage products such as poultry, non-alcoholic drinks like fruit juices and dairy products.

The Halal Meat Conference shall bring together three events in one: An international Scientific & Economic Symposium on halal food products.

A pre-arranged meeting program for companies and institutions, both sellers and buyers of halal meat as well as accompanying foods is also planned.

A Saudi food exhibition: Keeping in mind that Saudi Arabia imports meat products worth 7.2 billion dollars (a demand which shoots up considerably during high season when SA receives some 5 million visitors), the Halal Conference would provide an ideal opportunity to Indian professionals to highlight the strenghts of their products before an international gathering, to relaunch operations in the Gulf and to consolidate their position in this sector.

As a special concession to Indians, and in the hope of facilitating reestablishment of healthy contacts with consumers of halal products the world over, Promosalons shall be happy to offer interesting concessions to local businessmen and government bodies who might wish to participate in the Halal Food Conference. And should you be looking for a travel package to Riyadh, inclusive of air tickets, hotel accommodation and airport transfers, Promosalons invites you to contact without further delay our appointed travel agent at the following address.

For more details contact:

Arun Hattangadi, Head M.I.C.E., Travel Corporation (India) Ltd., Chander Mukhi, Nariman Point, Mumbai 400021. Tel: 022-2021881/2027120, Fax: 022-2029424, Email: leisuresales1@tci.co.in, Website: www.halal food.org.sa

---

WORLD FOOD MOSCOW 2001

Venue: Krasnaya Presnya, Moscow

Date: 25th - 28th Sept., 2001

World Food Moscow 2001, Russia's Premier International Food & Drink Exhibition and the largest of its kind is organised in Russia by ITE Group Plc, the world's leading exhibition organiser in emerging markets. Over 525 exhibitors from 44 countries are expected to take part in the exhibition. The exhibition will provide agateway into the vast and emerging food markets of Russia.

For the first time **World Food Moscow** will be co-located with **Sweets Expo Moscow, the International Sweets and Confectionery, Biscuit and Pastry Exhibition,** which has attracted confectionery Associations from countries including Brazil, Spain and Poland.

ITE Asia Pte Ltd. is now organising participation of Asian companies at **World Food Moscow 2001**.

• Cocoa, Chocolate and chocolate confectionery • Biscuits, cakes and waffles • Crackers, salted cookies, snacks • Sugar confectionery, marzipan articles, filled sweets, caramel • Semi-finished cake ingredients • Children's confectionery • Diabetic and diet articles • Technology • Flavours, colourings, additives used in confectionery.

For more details contact:

Loy Joon How, Gen. Manager, ITE Asia Pte Ltd., 89 Short Street, #B-11, Golden Wall Centre, Singapore 188216. Tel: 65-3360655, Fax: 65-3379005, Email: joonhow@pacific.net.sg

---

LABELEXPO EUROPE 2001

Venue: Brussels, Belgium

Date: 26th - 29th Sept., 2001

Organised by Tarsus Martex a part of Tarsus group Plc, the **Label Expo Europe 2001** will be showcasing new developments in narrow web printing including flexible packaging, folding cartons and digital printing.

Among the many new highlights of **Labelexpo Europe 2001** will be the 'visitor trails'. The marked trails will be used to direct visitors to the stands for flexible packaging, folding cartons, digital solutions, labelling solutions and converting solu-

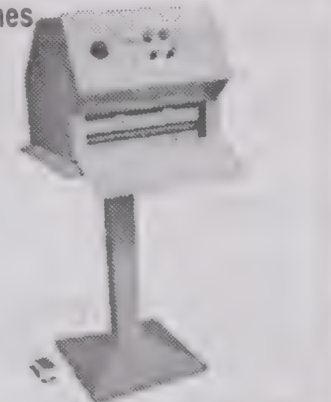
Indvac RANGE OF PACKAGING MACHINERIES

Vacuum Packaging Machines

Available in Table top, Single & Double Chamber Trolley & Vertical models

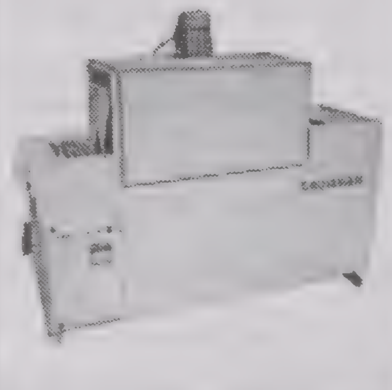
Nitrogen Flushing Machine

Pillow packing of Potato Wafer pouches



Optional vacuumising system

Shrink Wrapping Machines



Conveyorised Tunnel type models with OptionalL sealing attachment

Other Products:

- Impulse / Hotbar Sealers
- Special Pneumatic long sealers
- Continuous sealers
- Vertical sealers

SAURABH ENGINEERS

11, Upvan Co. Op. Hsg. Soc. Ltd.,
Off. 132 Ft Ring Road, Ahmedabad-51.
Phone : (O. & R.) 6765115, 6760292
(Fact.) 2740288, 2732428
Fax : 91-79-6765115/2740288
e-mail : indvac@ad1.vsnl.net.in
web-site : www.indvac.com

ns. This will make it easier for visitors to d their way around this extensive event. lucational seminars are an added fea-re to the **Labelexpo Europe 2001** exhibi-n.

About 390 companies are expected to ke part in this event.

For more details contact:

Gillian Pattison, Press Officer., Tel: (0)20 8846 2700, Email: gpattison tarsus.co.uk, Joanne Watts, Press ficer., Tel: 44(0)20 8846 2743, Email: atts@tarsus.co.uk

INTERNATIONAL FOOD FAIR 2001
Venue: Sharjah, Dubai
Date: 4th - 9th Oct., 2001

International food fair delivers the fo-ssed buying power of the Middle East gion's retail, food service, processing, porting and wholesale companies to ur stand, being the region's established ading forum that interfaces food manu-cturers, buyers, suppliers and decision-akers.

Opportunities abound at the show for aking sales on the show floor and gener-ing leads for follow-up in the Middle East arket. Being a cost-effective resource for ilding relationship and conducting food isiness, it can be your ideal strategy to ther launch yourself or strengthen your esence in this market.

Show Profile: Fresh, frozen and packed od; Dairy products, beverages, spices, ains & cereals; Farm supplies and equip-ent, including fertilisers, manure and achinery; Food processing & packaging achinery appliance and materials.

Special package: US $ 2,500 offered hich includes 9 sqm shell scheme stand, ne double room in a Sharjah hotel for six ghts and two visas, airport pickup and op and daily transport to the fair ground.

For further details, contact:

Ms. Kangan Uberoi, Exhibitions India vt. Ltd., A-17, 2nd Floor, DDA Office um Shopping Complex (Near Mool-hand Flyover) Defence Colony, New elhi 110024. Tel: +91 11 4638680 -84, ax: +91 11 462 3320 / 463 3506, Email: omnetexhibitions@vsnl.net

BIOTECHNICA
Venue: Hannover, Germany
Date: 9-11 Oct., 2001

The global biotech industry will be meet-ng at the tradefair BioTechnica, the key ade fair for biotechnology. BioTechnica 001 shall provide right exposure for the ompanies in the area of Nutrition quality nprovement, Nutrition physiology, Food dditives, Functional food, Novel food, Ag-culture, Pharmaceutical and Medicine nd the Environment, Marine Biology, Bio emediation, Environment protection and griculture.

Financial Services: A new section is devoted exclusively to financial advice and marketing. The visitors and exhibitors are able to obtain expert financial advice on new start-ups, venture capital, share offerings.

For more details contact:

Orbit, 1127, Midway Premises, A.S. Marathe Marg, Prabhadevi, Mumbai 400 025. Tel: 437 9282 / 83, Fax: 430 5707, 4314153, Email: sales. bom@orbit-world.com

ANUGA - 2001
Venue: Cologne, Germany
Date: 13th - 17th Oct., 2001

Anuga is undisputedly the largest and most international food fair in the world and at the same time it is also the most significant information and communication platform for the global food industry.

Anuga will be introducing a range of innovation and improvements precisely tailored to the needs of exhibitors and visitors alike, An improved exhibition concept to bring better orientation to visitors. It will present new and exciting developments in the food and drink industry. Anuga will also feature 8 crossover trend. Such Crossover themes offer an ideal opportunity to boost the number of contacts made. • Organic foods • Fresh products • Specialities • Trade brand presentation • Convenience products • Catering products • Products for the wholesale and retail food trade • Products for the catering industry.

Over 6000 suppliers from 100 countries will be on hand at Anuga to exhibit a unique range of products covering almost all areas of the food and drinks industry. Over 2 lakhs visitors are expected from 152 countries. The fair will also showcase the latest technology and services for the grocery trade, the catering sector and the vending trade.

Discussions, presentations and workshops offered in the supporting programme will all be oriented towards current trends and topics in the industry. There will be special shows: • Trade forum • Gastro food forum • Business concepts of the future • Vending Park • Golden Championship.

Over 40 Indian companies are expected to take part in Anuga. A large number of Indian businessmen will visit the fair to explore new business avenues. In order to improve India's export prospects, India Trade Promotion Organisation will be putting up an Indian Pavilion to showcase exclusive Indian products such as spices, cashew nuts, tea and coffee, marine products as well as processed food items.

Product Profile: • Milk & Dairy products • Bread, bakery & beverages • Vending • Specialities • Staples & fine foods • Catering technology • Drinks • Fruit & vegetables • Frozen foods • Retail technology & display

For more details contact:

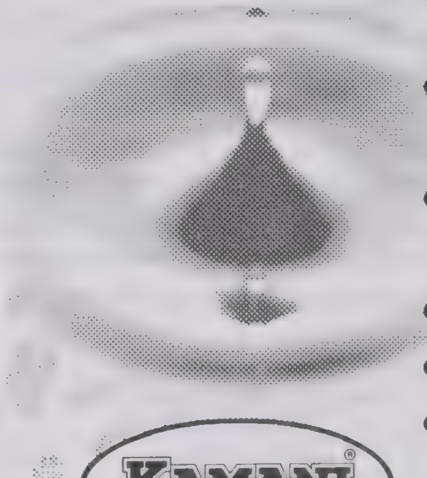
Indo-German Chamber of Commerce, Maker Towers 'E', 1st Floor, Cuffe Parade, Mumbai 400 005. Tel: +91-22-2186131 (9 Lines), Fax: +91-22-2180523, Email: igcc@giasbm01. vsnl.net.in

K 2001, THE 15TH INTERNATIONAL TRADE FAIR FOR PLASTICS + RUBBER
Venue: Düsselforf
Date: Oct. 25 – Nov. 1, 2001

K 2001, the 15th International Trade Fair for Plastics + Rubber will provide specialists in flexible packaging with ample opportunity to study the state of stand-up

FRYWELL

Refined Vegetable Oil



- Speciality frying oil with excellent shelf life.
- High smoke point giving high operational life.
- Nutritionally balanced oil.
- Good reusability.
- Ideal for domestic, catering and institutional use.

KAMANI®
Healthy Oils

A solution for every application

We have a range of edible oils and fats to cater to different needs.
We would be happy to answer any queries you may have about oils and fats.

KAMANI OIL INDUSTRIES
317-Pooran Asha Bldg., Narsi Natha Street, Mumbai 400009.
Fax : 022 - 343 5964 **Tel. :** 022 - 343 5968 **E-mail :** kamani@bom2.vsnl.net.in

pouches and all that they entail. It is the world's largest trade fair for the plastics and rubber industries where one can hope to find all the relevant market participants close together. Raw material producers, plastics processors, plastics finishers, barrier specialists and machine builders – from extruders to further processing machinery for flexible packaging materials – will be on hand. K 2001 is being held under the motto "Vision – Innovation – Business" – and this of course also very much applies to the packaging sector.

For more details contact:

K 2001 Press Office, Eva Rugenstein, Ruth Füßer, Tel: 49(0) 211/4560 240, Email: RugensteinE@messe-duesseldorf.de, Fax: +49(0)211/4560 8548,

---

FOOD TECHNOLOGY EXPO 2001

Venue: China

Date: 21st-24th Nov., 2001

Food Technology Expo will be held from November 21-24, 2001 at Xiamen International Conference & Exhibition Centre, Fujian, China. Incorporating two specialized events namely The 2nd International Meat and Frozen Processing & Packaging Equipment & Products Exhibition for China (Meatex and Frozenex 2001) and The 2nd International Exhibition on Cereal, Oil and Foodstuff Processing, Storage and Transportation Technology for China (Cereal & Oil China 2001), Food Technology Expo is geared to be the largest specialist of its kind in the South China.

Food Technology Expo is a show dedicated to the China's food industry, containing all up-to-the-minute machinery and technologies from food manufacturing, processing, packaging, to ingredients, additives and end-products. The expo is expected to have over 20000 buyers and senior executives from every corner of China, including food manufactures, processors, packagers, developers, engineers, quality control specialists, consultants, traders, etc. Food Technology Expo offers an excellent opportunity for overseas investors to penetrate the lucrative China market.

For more details contact:

Business & Industrial Trade Fairs Ltd., Unit 1223, 12/F, HITEC, 1 Trademark Drive, Kowloon Bay, Hong Kong. Tel: 852-2865 2633, Fax: 2866 1770, 2865 5513, Email: promotion@bitf.com.hk

---

FOODTECH 2002

Venue: Malaysia

Date: 27th - 30th June, 2002

Organised by Trade Link Exhibition Services, Foodtech 2002 to be held in Malaysia will be the biggest food and food technology show.

This is the one-step meeting place for buyers and suppliers of food and food processing technology, beverages, tableware as well as cooking, refrigeration and storage systems and equipment for hotels and supermarkets.

Undoubtedly, Foodtech Malaysia 2002 provides a unique opportunity for face-to-face business transactions between the movers and shakers of the industry. Atleast 50 exhibitors and 500 buyers from India will be participating in the show. Plans are also being made to have an "India Food festival" in the next show which would be exclusively focused on Indian cuisine.

Incorporating: • Good & Fine Food Show 2002 • Beertech 2002 • Bakerytech 2002 • Kitchentech 2002 • Spirits & Wines 2002 • Coffee & Tea 2002 • Seafood 2002 • Hotel & Catering 2002 • Retail 2002 • Food Export Showcase 2002 • Sweets & Confectionery 2002 • Food Pro 2002 • Supermarket 2002 • Food Ingredients 2002.

For more details contact:

Mr. Jonathan Kan / Ms. Chia Y.C., Trade-Link Exhibition Services SDN BHD. (269279-W), No. 12A, 1st Floor Jalan SS12/1B, 47500 Subang Jaya Selangor, Malaysia. Tel: 5635 6086, Fax 603-5635 6199, Email: chia_yc@ trade-link.com.my

---

18TH INTERNATIONAL FOOD & BEVERAGES EXHIBITION

Venue: Tel Aviv – Israel

Date: 27th - 30 June, 2002

The International Food and Beverages Exhibition held annually is well known world-wide and is one of the most prestigious and popular business event in Israel. It is Israel's largest food and related items exhibition (22,000 visitors in 2000). The exhibition is open to professionals and is marketed by a large and well organized promotional campaign.

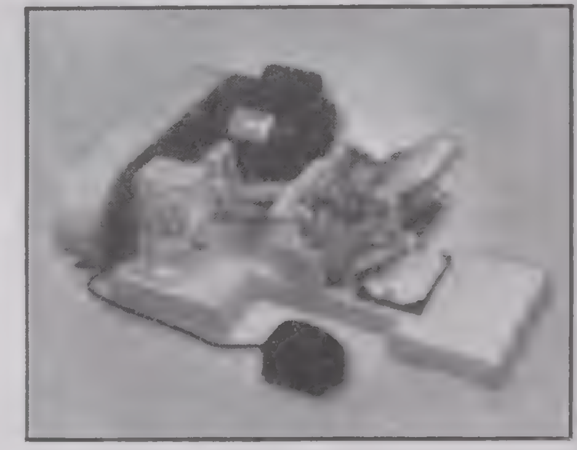
India Trade Promotion Organisation (ITPO) is organizing national level participation of Indian trade and industry in the 18th International Food and Beverages Exhibition in Tel Aviv (Israel) from October, 30 to November 01, 2001. A number of related events are organized during the Exhibition. These include ISRAFOOD (food products ranging from general, frozen, health foods, spices, tea, coffee, meat, fish, fruits and vegetables, nuts, oils to food packaging machines and materials), HOTEX (all items required for the hotel industry including kitchen equipment, home furnishing items, utensils crockery and cutlery, etc.) WINE (alcohol beverages) and CONDI (confectionary industry). The exhibition attracts major buyers, supermarket chain representives, retailers and wholesalers, distributors, hotels and related industries. The Exhibition opens vast opportunities for Indian trade and industry.

For more details contact:

Amrit Singh, Deputy Gen. Manager, Pragati Maidan, New Delhi 110 001. Tel: 331 8243, Fax: 91-11-331 8142, 332 0855, 331 7896.

Since 1981, SATISH ENTERPRISES is one roof for source for Marking and Coding requirements in Beverages, Food and Pharmaceuticals Industries.

- Compatible Inkjet inks/make-up for CIJ Printers like Videojet®, Domino ®, Willet ®, Linx ®, Imaje ® etc
- Hot Ink Rollers for Hot ink coder like Markem ®/Kortho® etc.
- Coding & Marking Machines
- Rubber Stereos (Cliche')
- Coding & Marking Inks
- Shipper, CG Box Coder, Online AutoCoder



BATCH
PRINTING
MACHINES

HOT INK
ROLLER

SATISH ENTERPRISES

Office: - A-3/62, Janak Puri, New Delhi 110 058
Tel: 91-011-5516904, 5535353, 5502859 ★ Fax: 5553563
Branch: 1702-3/108, Bhagirath Palace, Chandni Chowk, New Delhi 110006
Email: codeprnt@bol.net.in / info@satishenterprises.com
Website: www.satishenterprises.com

SHAH BROTHERS

A ONE STOP SHOP

- Filter Housing both Domestic & Industrial in PP, ABS & SS 316.
- Filter Cartridges Wound, Multilayered, PP, Spun & Pleated of Pall USA
- Complete Membrane Filtration Assembly (Single & Multiple) for Microbiological Examination
- Laboratory Equipments from Elico, Advance, Electrolab, Pathak, Eltek, Equitron - Autoclave & Colony Counter.
- Platinum Cured Silicone Tubing from Amesil USA.
- For the first time in India Ready to use Microbiological Media in Petridishes as per BIS requirement
- We offer 'TECHNICAL SERVICES' for setting up Laboratory, also undertake Repairs & Maintenance of Analytical Equipments and offer turnkey solution to your Microbiological/ Analytical Problem.

M/S. AQUAFILT INSTRUMENTS & SYSTEMS PVT. LTD.
Wadala Shriram Indl. Premises Co-op. Soc. Ltd.
Unit No. C-32, 3rd Flr., G.D. Ambedkar Road
Wadala, Mumbai 400 031
Tel: 022-4118872, 4118874, 4118875
Fax: 022-4118869 • Email: shahbros@bom5.vsnl.net.in

CALL NOW

ANNOUNCING!

DAIRY PRODUCTS & MACHINERY & ANCILLARIES

SPECIAL NUMBER OF

BEVERAGE & FOOD WORLD

WILL BE PUBLISHED IN OCTOBER 2001

BOOK YOUR ADVERTISEMENT NOW !

ADVERTISEMENT TARIFF

Colour Full Page upto 4 colours		(Inside)	(24 cms x 18.6 cms)..	Rs. 8500
Full Page		(B/W)	(24 cms x 18.6 cms)	Rs. 5500
Half Page	"	(Hor.)	(11.7 cms x 18.6 cms)	Rs. 3000
Half Page	"	(Vert.)	(24 cms x 9 cms)	Rs. 3000
One-Third Page	"	(Hor.)	(8 cms x 18.6 cms)	Rs. 2200
One-Third Page	"	(Vert.)	(24 cms x 6 cms)	Rs. 2200
Quarter Page	"	(Hor.)	(6 cms x 18.6 cms)	Rs. 1800
Quarter Page	"	(Vert.)	(11.7 cms x 9 cms)	Rs. 1800

Note : All Four Cover Positions have been booked. Front pages special positions on **first-come basis only**

Please note that the above rates do not include film processing charges.
Film Positives to be supplied or will be charged extra for processing

FREE WITH ADVERTISEMENT : • 100-word Product Write-up • Listings under 4 headings in 'Buyers Guide' Section

Send your Space Order to:

The Amalgamated Press

Narang House, 41, Ambalal Doshi Marg, Fort, Mumbai 400 001
Tel: 265 4184, 265 0268 • Fax: 91-22-2641275 • Email: dasilva@vsnl.com

BUYERS' GUIDE

ACE HYGIENE PRODUCTS PVT. LTD., 222, Shah & Nahar (A2), Lower Parel, Mumbai 13. Tel: 494 5957 / 495 4190, Fax: (022) 495 4250, Email: ho@alfa-india.com, Website: www.alfauv.com
Products: * Water Purifiers

AGUAPURO EQUIPMENT, 2/22, Panwala Building, Dr. S.S. Rao Road, Lalbaug, Mumbai 400 012. Tel: 4101432/415 5576, Fax: (022) 415 5576, Mobile: 9821078929, Email: ID aguapuro@vsnl.com, Website: www.aquapuro.s5. com
Products: * Dosing Equipment * Multimedia Sand / Carbon Filters * Softeners / Demineralisation Systems * Reverse Osmosis Systems * Micron Filters * Ozonators * Turnkey Project for Mineral / Pure Water for f&b application

ALOK INTERNATIONAL, 406, Goradia House,100/104 Kazi Sayed Street, P.O. Box 13048, Mumbai 400003. Tel: 342 6390/ 3415668. Fax: 91-22-341 5668
Products: * Gum Algel * Gum Tragacanth * Gum Karaya * Gum Ghatti * Gum Ester * Gum Guar * Gum Arabic/Acacia * Agar Agar * Locust Beand Gum * Gum Carrageenan etc.

APEX ELECTROMEC PHARMA P. LTD., 16, Nitin Indl. Complex, Ghartan Area #1, S.P. Road, Vaishali Nagar, Dahisar (E), Mumbai 400 068. Tel: 8964096 / Telefax: 8960263, Fax: 8968615, Email: apexppl@hotmail.com, Website: www.apexelectro-mec.com
Products: * Automatic/Semi automatic powder / Granule Fillers * Filling Line Accessories * Infrared Ray Dryers * Material Handling Equipments

APEX INTERNATIONAL
Tel: 91-175-225917, 701196, Mobile: 98141-24476 / 98112-56037/ 98112-22013
Products: 28 mm Liner Caps for Pet Soda and Carbonated Soft Drinks

AQUA FILSEP INC, 7, Retiwala Industrial Estate, H.A. Palav Marg, Byculla (E), Mumbai- 400027. Tel. (O): 3719455 (R): 4465521, Fax: 91-22-4465521. Ahmedabad: A1/ 1, Chinubhai Towers, Above IOB, Opp. Handloom House, Ashram Road, Ahmedabad 380009. Telefax: 079-6580047/6584069, Email: filsep@ad1.vsnl.net.in, Website: www. aquafilsep.com
Products: * Water & Effluent Treatment Plants * Softners * Demineralisers * Reverse Osmosis Plants * ETP * Chemicals

BOMBAY INDUSTRIAL ENGINEERS, 13, Crystal Apts., Gulmohar Cross Road 11, JVPD, Mumbai 400049. Tel: 91-22-6232810/6201914, Fax: 6201914 Email: ijsehgal @bom5.vsnl.in
Products: * Food Processing Machinery such as * Pulpers * Juice Extractors * Steam Jacketed Kettles * Fruit Slicers/Crushers * Mango Cutter * Canning Retorts, Hot/Cold Liquid Filling Lines * Bottle Closing Powder Filling, Form-Fill-Sealing Machines * Dryers (Tray, Tunnel, Drum, Fluid Bed) * Biscuit/ Bread Making Machinery * Toffee-Hard Boiled Sweet Machinery * Chewing Gum Making Machinery * Ovens * Sigma Kneaders * Mixers

BRITOMATICS ENGINEERS PVT. LTD., C-9, NandDham Ind. Est., Marol Maroshi Road, Andheri (E), Mumbai 400059. Tel: 91-22-8500833/8505834, Fax: 8504999 / 8505334, Email: britomatics@india.com, Website: www.britomatics.com/www.digicatonline.com/ britomatics
Products: * Filter Cartriges & Filter Housings for F& B, Pharmaceutical Industry & Biotechnology

CANTECH MACHINES, 13, Vora Bhuwan, Maheshwari Udyan, Above Dena Bank, Matunga (C.Rly.), Mumbai 400019. Tel: 91-22-4096086, 4096853, Fax: 409 6086, Email: dpandya@ bom3. vsnl.net.in
Products: * Can Seaming, Reforming, Flanging, Embo-ssing, Testing Equipment and Body Beader of International Standard. Complete Fruit & Vegetable Canning Project on Turnkey Basis. Available Imported High Speed Can Seamers both New and Second Hand Machines and OTS Aluminium Two Piece Canline can be procurred * Liquid Fillers * Metal Box Machines Spares

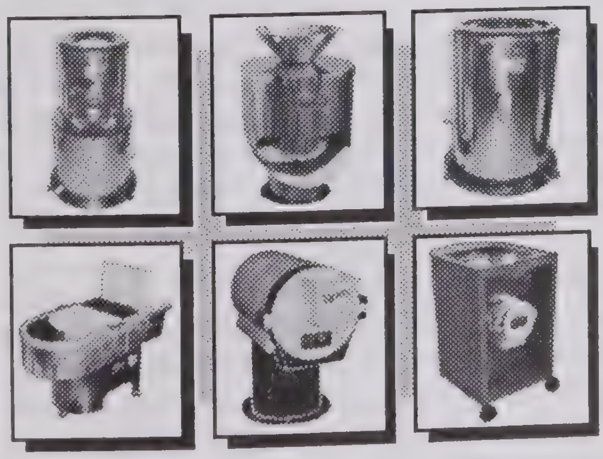
CHHAYA ENTERPRISES, C-5, Parle Colony, Sahar Road, Vile Parle (E), Mumbai 400057. Tel: (F): 8329259, 8205584
Products: * F& B Processing Machinery e.g. * Colloid Mill * Volumetric Filler * Lobe Pumps * Syringes * Machinery Spare Parts

COSYWO™ ENGINEERING COMPANY, 15 Laxmi Co-op. Indl Est., Near Nagarvel, Hanuman Mandir, Amraiwadi Rd., Ahmedabad -26. Telefax: 2748164. 2748001. Website: www.cosywo.com
Products: * Stirrers(Lab. & Tank Mounted) * Telescopic Stand with geared agitator * Emulsifier * S.S. Tank * Hollow Shaft Drum Stirrer

CREATIVE CONCEPTS, F-60, Sector 8, Noida 201301, U.P. Telefax: 011-4523339, 4552249, 4543337, Email: concept@nda.vsnl.net.in / subodhbhatnagar @vsnl.com
Products : Ozone generators for sterilization of Air, Water and Food * Water Treatment Plants * Mineral Water Plants

GANESH BENZOPLAST LTD., Ganesh House, Marol Naka, Andheri (E), Mumbai 400 059. Tel: 850 2096, Fax: 91-22-8505529, Email: rkpl@vsnl.com
Products: * Food Preservatives such as * Sodium Benzoate * Benzoic Acid * Fumaric Acid

GANGA SINGH ENGG. PVT. LTD., Unit No.1, Vishal Indl. Estate, Village Road, Bhandup (W), Mumbai 400078. Tel: 91-22-5600562, 5690572, 5645287 (R), Fax: 5649312, Email: ganga@ bom4.vsnl.net.in, URL: http:// www.gangaengg. com
Products: * Semi Automatic Canning Unit * Can Seaming Machine * Tin Container making Machinery * Seaming Machine for packing Liquids, Dry Contents and Pesticides * Semi-automatic Seaming Machines * Can Reforming Machines * Can Flanging Machines Power/Hand Operated



Move towards 21st century today !!!

Very useful *'Krishna'* machinery for the manufacturer of sweets (Farsan) Dairyfarm, Ice-cream, Wafers and Namkeen and for Caterars and Temples.

- *'Krishna'* Potato, Papita Pillar Machine. (Without Amri)
- *'Krishna'* multu-purpose cutting machine for (Wafer / Salli) potato, cocountut, gourd, carrots, papita, Cashewnaut.
- *'Krishna'* Wafar Seeds Diring Machine.
- *'Krishna'* Banana wafer (chips) machine.
- *'Krishna'* multi-purpose Machine for dry-fruit. Wet/Dry grinder chips Powder Machine.
- *'Krishna'* Dry-fruit Tukada (Bolder) Machine
- *'Krishna'* Ruffle type Potato - Chips DIE is also available.

Year 2001 : New Models Potato Jali & Banana Long Wafer

The first in India, The pride of Gujarat

Wednesday Closed

All machines are without Belt.

Manufacturers :
Hariom Industries
Dhebar Road (South), Atika Industrial Area, Near Jaidev Foundry, RAJKOT-360 002.
Phone : 363620, R.371438 • Fax : 371745 • Mobile : 9824210251 • E-mail : Hariomind@epatra.com

GARUDA ENGINEERS, Rudrax-11, Sheed No.3, G.I.D.C. Phase III, Vatva, Opp. Annapurna Restraurant, Ahmedabad 382445

Products: * Groove and flat rubber stereos for packaging products

GOGIA CHEMICAL INDUSTRIAL PVT. LTD., A-127 Okhla Industrial Area, Phase II, New Delhi 110020. Tel: 6836007/6915194/0329, 692 5664, Fax: 91-11-6840763, Email: geipl@vsnl.com, Website: www.gogia.com

Products: 'PEACOCK BRAND' Industrial Flavours, Fragrance and Essential Oil

GOMA ENGINEERING PVT. LTD., Majiwada, Behind Universal Petrol Pump, Thane 400601, Mumbai. Tel: 91-22-534 6436, 5340875, Fax: 5333634, Email: goma@vsnl.com.

Products: * Turnkey Dairy Projects * Pasteurizers * High Pressure Homogenisers *Sanitary Pumps * Milk Pumps * Storage Tanks * Ghee Boilers * Cream Separators * Clarifiers *Bulk Coolers *Butter Churn * Ice Cream Plants *Milk Tanks *Cheese Line * Butter Line * Other Dairy Equipment

GOPAL ENGINEERING WORKS, 2/4, 5, Kailesh Industrial Estate, B/H, C.M.C. Odhav Ahmedabad 382415. Telefax: 079 287 4969

Products: * Label Code Printing Machine * Auto Linear Tube Filling and Crimping Machine (Pneumatic system) * Ropp Cap Sealing Machine * S.S. Centrifugal Pump

H.P. INDUSTRIES, 2, Joaquim Cottage, Vazir Glass Works Road, J.B. Nagar, Opp.Tata Infotech Ltd., Andheri (E), Mumbai 400059. Tele/Fax: 8352505, 8392883, Email: hujone@bol.net.in, Website: www.hpmachines. com

Products: Cup Filling & Sealing Machines* Conveyors * Pickle/Chutney/Jam Filling & Capping Machine * Automatic Monoblock Rinsing, Filling & Capping Machine for Mineral Water * 3 in 1 Monoblock Machine * Two Head Powder Filling Machine * Rotary Vacuum Filling Machine * SPM Machine

HARI OM INDUSTRIES, Dhebar Road (South) Atika Industrial Area, St-3 Near Jaydev Foundry, Rajkot 360002. Tel: 363620 (R) 371438, Fax: 0281-371745, Email: hariomind@epatra.com

Products: Food Processing Machinery

HITECH ULTRAVIOLET PVT. LTD., P.O. Box No. 8356, 35, Grace Plaza, 33, S.V. Road, Jogeshwari (W), Mumbai 400102. Tel: 91-22-6790610, 6794611, 6794327, Fax: 91-22-6794337, Email: hitechuv@bom5.vsnl.net.in

Products: * UV Water Disinfection Systems * Air Purifiers * Filters * Water Treatment Plants * Bottling Plants

JANAK DEHYDRATION PVT. LTD., P.B. 58, Keri Bazar, Old Darbargadh, Mahuva 364290 (Dist. Bhavnagar), Guj. Tel: 02844-27763/64/65, Fax: 02844-24265 **Mumbai Mktg. Off.:** Tel: 8074436/8061113, Fax: 022-8612735 Email: jkmehta@bom5. vsnl.net.in

Products: * Dehydrated Vegetable Products such as Onion, Garlic, etc. Free flowing Powders of dehydrated Onion and Garlic

JAY CHEM MARKETING, B/5, 3rd Flr, Nemi Krishna Soc., V.L. Rd., Kandivali (West), Mumbai - 400 067. Tel. Nos: (022) 8020141 /8061337, Fax No: (022) 8061337 Email:jaychem@bom3.vsnl.net.in

Products: Aspartame * Calcium Propionate * Carrageenan * Enzymes * Acesulfame K. * Glucono Delta Lactone * Glyceryl Mono Stearate (GMS) * Monosodium Glutamate * Pectin * Potassium Sorbate * Sodium Benzoate * Sodium Citrate * Sorbic Acid * Sweeteners * Xanthan Gum

JET PACK MACHINES, C-18, Nandjyot Indust. Estate, Safed Pool, Kurla-Andheri Road, Sakinaka, Mumbai 400072. Tel: 91-22-8516489, 8515561, Fax: 8516489, Email:jetpack@vsnl. com

Products: * Packaging Machines such as* Powder Filling Machines * Cream /Paste Filling Machines * Liquid Filling Machines * Horizontal Flow Wrapping Machine * Granules Filling Machine * Capping Machines * Batch Coding Machines * Neck Sleeving Machine * Insert Sealing Machines *Carton Overwrapping Machines*Alu Foil Sealing Machines

K. RAHEJA MERCANTILE CORPORATION., 108, New India Indl. Estate, Off Mahakali Caves Road, Andheri (E), Mumbai 400093. Tel: 8382032/1529/8394665/4666, Fax: 8363458, Email: sales@krahejacontainers. com, Website: http://www.kraheja containers.com

Products: * Thin Walled Plastic Containers

KAIZEN ENTERPRISES, A/5, Trupti, G.V. Scheme Road #4, Mulund (E), Mumbai -400081. Tel: 5646873, Fax: 5646873, Email: kaizen@zeenext.com

Products: * Weigh-Fill Machine

KOMAL INDUSTRIES, 108 Creative Ind. Centre, 12 N.M. Joshi Marg, Lower Parel, Mumbai 400011. Tel: 91-22-3091090, 3091174, Fax: 3062711, Email: kcc@giasbm01.vsnl.net.in

Products: * Water Treatment Plant * Water Demineralisation Plant * Mineral Water * U.V. Disinfector * Drinking Water System * Micron Filter * Ozonator * Water Softening Plant * RO Systems *Water Filteration Plant * Water Purifier * Dosing System

KOTHARI PHARMA, C-11, M.K. Brothers Ind. Estate, Jarimari, Andheri-Kurla Road, Andheri (E), Mumbai 400072. Tel: 8510837/2794, Fax: 8513584/8389961 Email: chandrakant@kothari pharma.com, Website: www. kothari pharma.com

Products: * Pharma Machineries * Fluid Bed Dryer * Filter Press * Distillation Plant * Rotary Bottle Washing Machine

KUMAR PROCESS CONSULTANTS & CHEMICALS PVT. LTD., 230/4, Ashoka House, Behind Sheetal Arch, Linking Road, Bandra (W), Mumbai 400050. Tel: 91-22-6451964, 6432512, 6420637, Fax: 91-22-6432512, 6420637, 6451964, Email: kumarfil@ bom3.vsnl.net.in

Products: * Polishing Filters for Solvents, Aqueous Solutions, Injectables * Membrane Holders * Liquid Filters upto 0.1 Micron * Air Filters upto 0.01 Micron * In-Line Conical Filters Micron *S. S. Lab Filters * Filter Cartridges & Discs * Filter Housings

LAB INSTRUMENTS, 9, Ratnadeep,. 78-B, Jagannath Sankar Seth Road, Mumbai 400004. Tel: 3690973, 3681316, Fax: 3690973

Products: * Laboratory Equipment & Appliances e.g. * Spectrophotometer * Electronic Balances * Ion Analyser * Tintometer * Brook Field Viscometer * Centrifuge * pH Meter * Conductivity Meter * Polarimeter * Refractometer *Stirrers * Emulsifiers * Hot Air Ovens * Heating Mantles * Filter Paper * Borosil Glassware * B.O.D. Incubator * Moisture Meter

LUCAS ELECTRONICS, B2/5, Mapkhan Nagar, Near fire Brigade, Marol Naka, Andheri (E), Mumbai 400059. Tel: 821 3660, Telefax: 8501265, Email: lucasg@bom2. vsnl.net.in

Products: * Continuous Sealer Machine with Gas Flushing Machine * Shrink Wrapping Machine * Cap Sealer Machine * Vacuum + Nitrogen Flushing Machine * Motorised Pepsi Sealer Machine * Mineral Water Pouch Sealing Machine

LUCID COLLOIDS (Indian Gum Industries), 401, Navbharat Estate, Zakaria Bunder Road, Sewri (W), Mumbai 400 015. Tel: 415 8059, Fax: 415 8074/75

Products: * Guargums * Modified and Derivated Guargums *Hydrocolloids Blends * Stabilizers for Food, Feed and Pharmaceutical Applications

M. SON INDUSTRIES, D-33, Sector-2, Noida 201 301, U.P. Telefax: 011-8-4552177, 453 8397 (R) 011-8-453 6955, 454 3199, Email: mson@nda.vsnl.net.in, Website: www.food.machines.com

Products: * Roasting Plants * Ready To Eat Snack Plant * Conveyorised Roasters & Driers * All Types of Mixers & Pulverisers * Potato Peeler * Steam Jacket Kettle * Steam Retard * S.S. Storage Tanks * Crown Corking Machines * Rotary Roasters * Dal Driers * Papad Plant * All Types of Extruders * All Types of Conveyors for Material Handling * Chappati Making Plant

MAGUMPS, Trisandhya 'A' Bldg., 97, Dadasaheb Phalke Rd., Dadar (E), Mumbai 400014. Tel: 4113572. 4154474, Fax: 91-22-4137648, 4138307, Email: magumps@ bom5. vsnl.net.in

Products: * Label Gumming Machine * Batch Printing Machines * Liquid Filling Machines * Bottle Brushing Machines * Bottle Washing Machines * S S Tanks * Ovens * Blenders * Mixers * Bottle Filling/Sealing Machines * Sieving & Sifting Machines * Machinery, Fruit & Vegetable Processing

NEEL BIOTECH PVT. LTD., S/3, Navrang, Swastik Cross Road, Navrangpura, Ahmedabad 380009. Tel: 91-79-642 6971, 656 8012, Fax: 656 2199, Email: nbo@dewang.com / dcorp@ vsnl.com

Products: * Food Processing Machinery * All Equipment Comply with HACCP Standards

NOVA FLAVOURS & FRAGRANCES (P.) LTD., 301 Sterling Estate, 3rd Floor, Plot No. 8, Ramchandra Lane Extn., Kachpada, Malad (W) Tel: 844 6405, 8446481, Tel/Fax: 8812059

Email: hopl@bom5.vsnl.net.in
Products: * Flavours (Liquid & Powder * Emulsions and Pastes Culinary Essences * Essential Oils

P. M. VORA & CO., Ramesh Chamber, First Floor, 14 Garibdas Street, Vadgadi, Mumbai 400 003. Tel: 3438487, Telefax: 3445367, Email: hopl@bom5.vsnl.net.in
Products: * Food Flavours & Colours * Food Chemicals * Citric Acid * Soya Lecithin

PRAJ INDUSTRIES LTD., Praj House, Bavdhan, Pune 411021. Tel: (outstation)+91-2139-51511, 52214, Fax: +91-2139-51718, 51515, Email: ethc@praj.net, Website: http://www.praj.net
Products: * **ECOFLUX** corrugated Tube Heat Exchangers are specially designed to meet the hygienic requirement in fruit processing applications

PRINCE MULTIPLAST PVT. LTD., Amar House, Plot No.103, Road No. 12, MIDC Andheri (W), Mumbai 400 093. Tel: 8363600/01/02/03, Fax: 91-22-8360404/0088 Email: sales@princemultiplast.com Website: www.princemultiplast.com
Products: * Crates and Blow Moulded Containers

PROCESS PRECISION INSTRUMENTS, 3, Ground Floor, Poddar Bldg. No. 1, Near Sandhurst Road, Rly. Stn., Mumbai 400 009. Tel: 372 0507, Telefax: 375 1572, Email: ppibom@vsnl.net
Products: * Grado" brand Universal Indicators & Controllers

R&D ENGINEERS, A-41, IDA Kukatpally, Phase -II, Road No.4, Via I.E., Gandhi Nagar, Hyderabad - 500 037. Tel: 3079121, 3079878, Fax: 040-3078668, Email: randengg@hd1.vsnl.net.in, Website: www.rnd wafers.com
Products: * Automatic/Semi Automatic Baking Machine Cream Wafer Biscuit & Icecream Cone making Machine

RADIX MICROSYSTEM, D/201, Bonanza Industrial Estate, Kandivli (E), Mumbai 400 101. Tel: 887 2440 / 2116 / 0517, Fax: 887 4433, Email: sales@radix.cc, Website: www. radix.cc
Products: * 2 Wire Transmitters * Programmable on/off controllers * Thermocouples RTDs * PID Controllers * Universal Calibrator * Flameproof Instruments * Proximity Switches * 3½, 4½ Digit Controllers * Loop Powered Isolators displays * Timers Counters with memory * Signal Conditioners * Multizone Scanners, Controllers

RAJ PRODUCTS AND EQUIPMENT PVT. LTD., P.O. Box 8075, Mumbai 400 056, India. Tel: 816 2250, Telefax: 816 2750, Email: foramfod@ bom5.vsnl. net.in
Products: * Cap Sealing Machine

RIECO INDUSTRIES LTD., 1162/2, Shivajinagar, Behind Observatory, Pune 411005. Tel: 020-553 5384 / 5215, Fax: 020-5533229, Email: rieco@vsnl.com, package @rieco.com
Products: * Size Reduction Equipment * Material Handling System:- * Ribbon Blender * Pneumatic conveying system * Screw conveyor * Fumes & Dust Extraction System * Gas Cleaning System and Air Pollution Control System * Industrial Fan, Scrubber/ Absorber/Heat Exchanger * Valves *Packaging Machines * Weighing * Bagging Machines, All Metal Detector & Separator, Tube Filling & Sealing, Liquid Filling Machines

S. A. PHARMA CHEM PVT. LTD., 220 Udyog Bhavan, Sonawala Road, Goregaon (E), Mumbai 400063. Fax: (022) 8769532. Tel: 8764700, Email: sac@sachemicals.com, Website: http://www.sachemicals. com
Products: * Speciality Ingredients

S.B. STEEL & ENGG. CO., 70, Kesari House, 3rd Floor, R-39, 2nd Kumbharwada, Mumbai 400 064. Telefax: 3858303, 3875092 (R), Mobile: 9820120191
Products: * Stainless Steel * C.S. Pipes * Pipes Fittings *Specialists in * Ellow *Bend *Return Elbow * Tee * Reducer * Caps * Flanges * Stu-bend * Union * Nipple * Dairy * Forge fittings

SARVAIYA CHEMICALS INDUSTRIES PVT. LTD., Plot No. 2928-2/ 2930-1,2929/2935-B, J-Type Area, GIDC, Vapi 396195, Dist. Bulbar, Gujarat. Tel: 0260-424941/427941. **Regd. Off.:** C-3, Delite Palace, 1st Flr., M.G. Road, Ghatkopar (W), Mumbai 400086. Tel: 5114968, 5128114, Fax: 514 8450/515 7529, Email: sarvaiya@ bom5.vsnl.net.in, Website: www. sarvaiya. com
Products: * Aqueous Extracts of Agriculture, Vegetable, Plants, Spice based Raw Materials and Liquid, Solutions of Food Grade Chemicals

SATISH ENTERPRISES, A-3/62, Janak Puri, New Delhi 110058. Tel: 011-5516904, 553 5353, 550 2859, Fax: 011-555 3563, Branch: 1702-3/108, Bhagirath Palace Chandni Chowk, New Delhi 110006, Email: Codapmt@bol.net.in, info@satishenterprises.com, Website: www. satishenterprises.com
Products: * Hot Ink Rollers * Coding and Marking Machines * Rubber Stereos (Clinche) * Coding and Marking Inks * Shipper, CG Box Coder, Online Autocoder * Compatible Injet Inks.

SAURABH ENGINEERS, 11, Upvan Co.op. Hsg. Soc. Ltd., Off. 132 Ft Ring Road, Ahmedabad 51. Tel: (O. & R.) 6765115, 6760292, Email:indvac@ ad1.vsnl.net.in, Website: www.indvac.com Fax: 91-79-6765115/2740288
Products: * Packaging Mac-hinery * Vacuum Packaging Machines * Nitrogen Flushing Machine * Shrink Wrapping Machines * Impulse/Hotbar Sealers * Special Pneumatic long Sealers * Continuous Sealers *Vertical Sealers

SHAH BROTHERS, Wadala Shriram Indl. Premises Co.op. Soc. Ltd., Unit No. C-32, 3rd Flr., G.B. Ambekar Road, Wadala, Mumbai 400031. Tel: 4118872/74/75, Fax: 4118869, Email: shahbros@bom5. vsnl.net.in
Products: * Analytical & Scientific Instruments *Filters * Laboratory Instruments *Filters Cartridge * Filter Paper * Filtration Units * Amesil Silicon Tubing

SHIRSAT ELECTRONICS, 133, Dewan Ind. Estate, 6, Navghar, Vasai (East), Thane 401210, Maharashtra. Tel: 91-250-392946, Fax: (250) 390793, Email: sakav @vsnl.com
Products: * Dryers * Bakery Ovens * Dehydrators * Fryers * Furnaces * Conveyor Systems

SHRIYAN ENTERPRISES, B/5, Ghanshyam Industrial Estate, Veera Desai Road, Andheri (West), Mumbai 400 053. Tel: 636 9057/ 636 8328, Tele/Fax: 022-636 8320, Email: shriflow @vsnl.com
Products: Carbonated/Non-Carbonated Packaging Machinery * Volumetric Liquid Filling Machine * Multi Head Rotary Gravity Filling Machine * Premix/Carbonator * Rinsing machine

SUNJAY TECHNOLOGIES PVT. LTD, B-11/12, Bhiwandiwalla Terrace, Gr. Flr. 618, J.S.S. Road, Mumbai 400 002. Tel: 201 6490, 201 5859, 200 4908, Fax: 91-22-2065334, Email: sscorp@vsnl.com, Website: www.sanjayscorp. com
Products: * Analytical Instruments such as Spectrophotomer, Gas Chromatograph, Viscometer, Tintometer, Colorimeter *Analytical Balances * Syringes * Valves

SUPERIOR ENGINEERING WORKS, Unit No. 53-B, Shukla Compound, Near Murbali Talao, Shiv Vallabh Road, Dahisar (E), Mumbai 400068. Tel: 91-22-887 8683/2303, Fax: 91-22-8938352
Products: * Slat Conveyor Chain & Wheel

TAZA FOODS (P) LTD., E-312, Crystal Plaza, Lokhandwala Link Road, Andheri (W), Mumbai 53. Tel: 634 6890, Fax: 634 9048
Products: * Snack Pallets based on Potato, Rice and Urad

TECHNO-EQUIPMENTS, Gala No. 9, Satyam Industrial Estate, Behind U.S. Vitamins, Off Bhaktakavi Devashi Marg, Govandi, Mumbai 400088. Tel: 5515640
Products: * Food Processing Machinery & Equipment

THE PALANI GROUP OF COMPANIES, 207, Oberoi Trade Centre, Oberoi Complex, Off. Malad Link Road, Near Laxmi Industrial Estate, Andheri (W), Mumbai 400 053. Tel: 6330974/0976/0973, Fax: 6325871/7941, 6361604 Email: palani@bom3. vsnl.net.in Website: www.palani group.com
Products: Dehydrated Vegetables * Guar Gum * Tamarind * Psyllium * Seeds and Spices * Genu Pectin * Genulacta Carrageenan * Blanose Gum CMC * Benecel * Aquasorb * Locust Bean Gum (LBG) * Tara Bean Gum * Agar-Agar *Xanthan Gum * Flour Improvers * Bread * Cake and Biscuit Improvers

THE TINPLATE COMPANY OF INDIA LTD. (TCIL), 4 Bansal Street, Calcutta 700 001. Tel: 2103963/4, Fax: 2204170, Email: cmm@tabtinplate.com, Website: www.tinplateindia.com
Products: * Tin Plate Packaging for Tata Tinplate

WRAPTECH MACHINES PVT. LTD., Dharamchand Industrial Estate, Deonar Village Road, Mumbai 400 088. Tel: 551 2138, 558 3596, Telefax: 557 0726, Email: abm@wrapmachines.com, Website: www.wrapmachines.com
Products: * Full Automatic PLC based Vertical form Fill Seal Machines

BEVERAGE & FOOD WORLD

Publishers: **THE AMALGAMATED PRESS**
Narang House, 2nd Floor, 41, Ambalal Doshi Marg, Fort, Mumbai 400 001
Tel : 265 02 68 / 265 41 84 ★ Fax: 91-22-2641275 ★ Email: dasilva@vsnl.com

ANNUAL SUBSCRIPTION

12 issues Rs. 450, 24 issues Rs. 850, 36 issues Rs. 1200
12 issues yearly Foreign : US $ 50 by airmail
Single Copy : Rs. 40 / US $ 5 by airmail
Annual Number : Rs. 50 / US $ 10 by airmail

3 - Year Subscription for only Rs. 1200/-

Published every month. The January issue is a bumper Annual Number
Payment to be remitted by Cheque, Bank Draft, Money Order or Postal Order.
For outside Bombay Cheques, please add Rs. 25.00

All remittances are payable to : "The Amalgamated Press, Mumbai".

We can commence your subscription with current issue only as back issues are sometimes out of stock.

Please fill in the form below and mail it to us, today, with your remittance under Registered post, or by Courier.

CUT OUT AND RETURN

Beverage & Food World

Publishers:
The Amalgamated Press
Narang House, 2nd Floor
41, Ambalal Doshi Marg
(Hamam Street) Fort
Mumbai 400 001
INDIA

SUBSCRIPTION ORDER

Date: ______________

Enlist me/us as Subscriber to **'Beverage & Food World'** for 12/24/36 issues beginning with the ....issue.
I/We enclose Cheque/Bank Draft/Postal Order/Money Order.
Receipt for Rs. ______________US$ ______________
in favour of **"The Amalgamated Press, Mumbai"**

Name ______________
Designation______________Signature ______________
Company ______________
Address ______________
____
Tel:______________ Fax: ______________
Email:______________
Products Mfd/Services Supplied ______________
____
____

BEVERAGE & FOOD WORLD

ANNOUNCES

FORTHCOMING SPECIAL ISSUES IN 2001-02

OCTOBER 2001

DAIRY PRODUCTS & EQUIPMENT

NOVEMBER 2001

Trade Fairs &
Conferences Special

JANUARY 2002

ANNUAL NUMBER
with "Buyers Guide"

MARCH 2002

AHAAR (FOODEXPO) 2002
Organised by ITPO, New Delhi

APRIL 2002

COLD ROOMS &
REFRIGERATION EQUIPMENT

MAY 2002

WATER TREATMENT, FILTERATION
EQUIPMENT, PUMPS & VALVES

JULY 2002

FOOD ADDITIVES & INGREDIGENT

AUGUST 2002

FOOD PROCESSING & PACKAGING
MACHINERY & EQUIPMENT

For more details contact Publishers:

THE AMALGAMATED PRESS
Narang House, 41, Ambalal Doshi Marg
Fort, Mumbai - 400 001
Tel: 2650268/4184 • Fax: 022-2641275
Email: dasilva@vsnl.com

INDEX TO ADVERTISERS

Page No.

Ace Hygiene Products Pvt. Ltd. ... 51
Aguapuro Equipments ... 41
Alok International ... 24
Andhra Agri.com 2002 ... 78
Apex Electromec Pharma Pvt. Ltd. *2nd Inside Cover*
Apex International ... 67
Aqua Filsep, Inc. ... 57

Bangalore Agri Food 2001 ... 76
Bombay Industrial Engineers ... 49
Britomatics Engineers Pvt. Ltd. ... 3

Cantech Machines ... 7
Chhaya Enterprise ... 45
Cosywo™ Engg. Co. ... 63
Creative Concepts ... 13

FOOD PRO 2001 ... 79
FOOD TECH INDIA 2001 ... 80
FOOD TECH Malaysia 2002 ... 74

Ganesh Benzoplast Ltd. ... 14
Ganga Singh Engg. Pvt. Ltd. ... 50
Garuda Engineers ... 50
Geeta Food Engineering ... 82
Gogia Chemical Industries Pvt. Ltd. ... 5
Goma Engineering Pvt. Ltd. ... 1
Gopal Engineering Works ... 47

H.P. Industries ... 63
Hariom Industries ... 91
Hitech Ultraviolet Pvt. Ltd. ... 50

INT'L FOODTEC INDIA 2002 ... 6

Jay Chem Marketing ... 47
Janak Dehydration Pvt. Ltd. ... 12
Jet Pack Machines ... 75

K. Raheja Mercantile Corp. ... 7
Kaizen Enterprises ... 49
Kamani Oil Industries ... 87
KISAN 2001 ... 4

Page

Komal Industries ...
Kothari Pharma ...
Kumar Process Consultants & Chemicals Pvt. Ltd. *Front Co*

Lab Instruments ...
Lucas Electronics ...
Lucid Group ...

M. Son Industries ...
Magumps ...

Neel Biotech Pvt. Ltd. ...
Nova Flavours & Fragrances Pvt. Ltd. ... 5

P.M. Vora & Co. ... 6
Praj Industries Ltd. ... 7
Prince Multiplast Pvt. Ltd. *1st Inside Cov*
Process Precision Instruments *Back Cov*

R&D Engineers ...
Radix Microsystems ... 1
Raj Products & Equipments Pvt. Ltd. ... 7
Rieco Industries Ltd. ... 2

S.A. Pharma Chem Pvt. Ltd. ... 4
S.B. Steel & Engineering Co. ... 47
Sarvaiya Chemicals Industries Pvt. Ltd. ... 2
Satish Enterprises ... 88
Saurabh Engineers ... 86
Shah Brothers ... 89
Shirsat Electronics ... 34
Shriyan Enterprises ... 67
Sunjay Technologies Pvt. Ltd. ... 10
Superior Engineering Works. ... 8

Taza Foods Pvt. Ltd. ... 67
Techno Equipments ... 40
The Palani Group of Companies ... 37
The Tata Iron & Steel Co. Ltd. ... 2

Wraptech Machines Pvt. Ltd. ... 17

LABORATORY INSTRUMENTS & EQUIPMENTS
FOR RESEARCH, EDUCATION AND INDUSTRIES

DELIVERY EX-STOCK
- UVD Spectrophotometer: USA / Japan
- Electronics Balances: Swiss / Japan
- Ion Analyser & Electrodes: ORION
- LOVIBOND TINTOMETER: UK make
- BROOK FIELD VISCOMETER: Analoge/Digital

ACCURATE IN QUALITY
- Refrigerated Centrifuge
- PH Meter/Conductivity Meter
- B.O.D. Incubator / Deep Freezer
- Polarimeter/Refractometer
- Hand Refractometer 'ERMA'

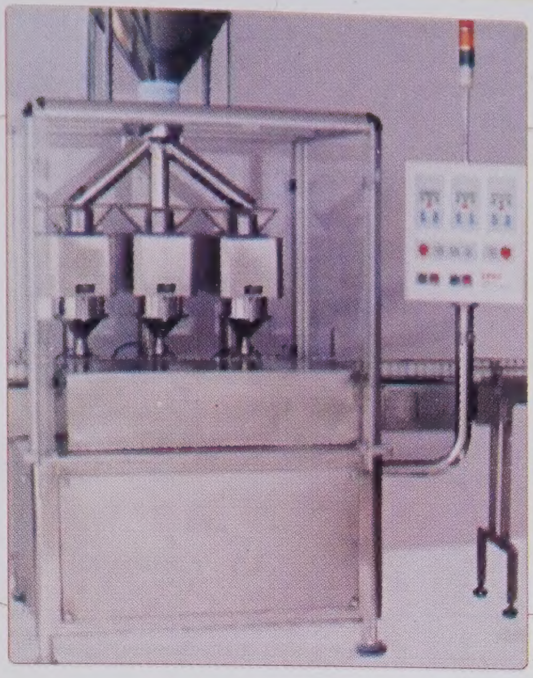
BEST QUALITY
- Stirrers & Emulsifiers
- Hot Air Oven/Incubator
- Muffle Furnace
- Heating Mantles
- Test Sieves/Sieve Shaker
- Autoclave/Water Still S.S.

K.F. Titration App., Tablet Disintegration App., Dissolution Rate Test Apparatus, PLATINUM Crucible/Dishes, Silicaware Filter Paper, Sp. Gr. Hydrometer, Zeal Thermometer, Membrane Sartorius Filter Paper, S. S. Filter Holder.

LAB-INSTRUMENTS
78 (B) Jagannath Sankar Seth Road, "Ratnadeep"
(Near Roxy, Opera House) Mumbai 400 004
Phone : 3690973, 3681316
Fax : 3690973

*r making stupendous strides in the complicated Pharmaceutical Business & armed with the ıstrial experience of nearly 2 decades, **APEX Electromec Pharma Pvt. Ltd**. has made its ıidable foray in food & Beverage industry. In countinuing its phylosophy of providing dedicated rice to the customers, APEX will continue to play its Role in food & Beverage industry too.*

APEX

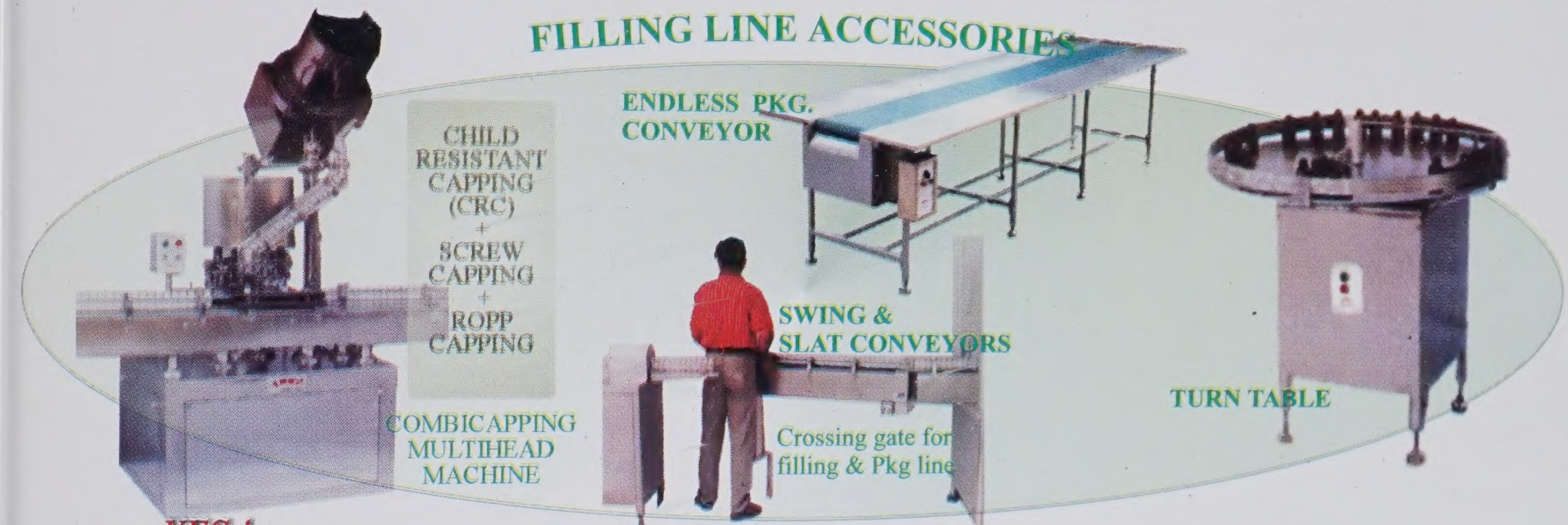


POWDER / GRANULE FILLERS

MODEL AVAILABLE:
SINGLE & MULTI HEAD
FULLY AUTOMATIC
& SEMI AUTOMATIC

VOLUMETRIC POWDER FILLING M/C

FILLING LINE ACCESSORIES


CHILD RESISTANT CAPPING (CRC)
+
SCREW CAPPING
+
ROPP CAPPING
COMBICAPPING MULTIHEAD MACHINE
ENDLESS PKG. CONVEYOR
SWING & SLAT CONVEYORS
Crossing gate for filling & Pkg line
TURN TABLE

YES !

you can source International Technology from

INFRARED RAY DRYERS

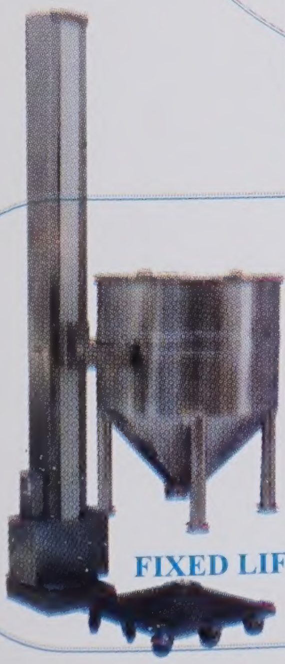
For Fruits, Powders, Leafs etc.

TUNNEL DRYER

UMBRELLA TYPE DRYER

For Equipments, Powders, Leafsetc.

MATERIAL HANDLING EQUIPMENTS


FIXED LIFTER

LIFTER & TILTER

ROUND IPC

MOBILE STACKER

PEX Electromec Pharma Pvt.Ltd.
ALES OFFICE: 16, Nitin Indl. Complex, Ghartan Area # 1, S. P. Road, Near Vaishali Nagar, Dahisar (E), Mumbai - 400 068.
el.:91-22-896 4096 / Telefax : 896 0263 Fax 896 8615 E-mail : apexppl@hotmail.com Website : www.apexelectromec.com

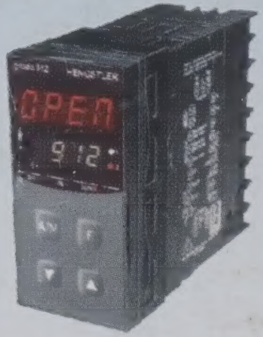
GLOBALISATION DEMANDS QUALITY

Improve your product Quality with 'grado'

PID Controllers

- Pre-Tune and Self-Tune Algorithms
- Fuzzy Logic Alogrithm to Minimise Start-up Times and Overshoots
- Optional Analog Input for Remote Setpoint
- 48x48, 48x96 & 96x96 DIN Formats.

Valve-Motor-Drive PID Controllers



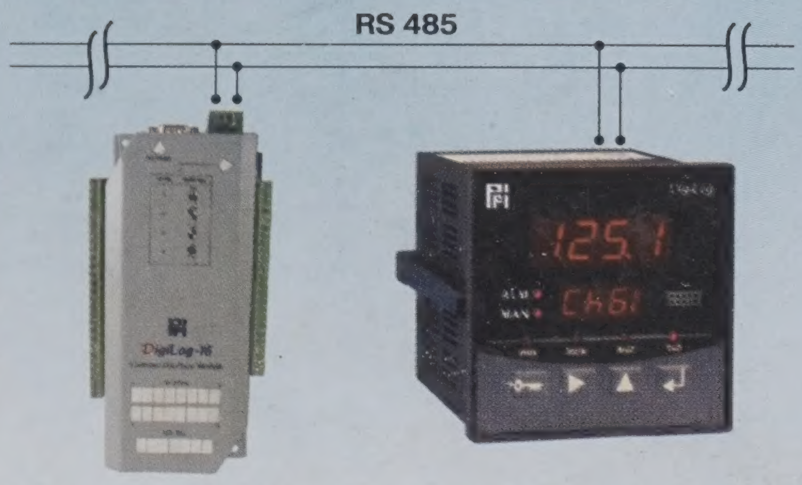
- Specifically Designed to Drive & Position Motorised Valves
- Open Loop Control Output, No Feedback Required
- 48x48, 48x96 & 96x96 DIN Formats

PID Profiler Controllers

- Most Advanced Profile Programmer with Fuzzy Logic Tuning for Best Case Approach
- 4 / 8 Programs of 16 Segments Each
- Optional 4 Event Outputs & Real Time Clock
- 48x48, 96x96 DIN Formats

'grado' Universal Process Indicators & Controllers

Assure your Product Quality with DigiLog



Channel Interface Module (CIM) User Interface Module (UIM)

CIM + UIM = DIGILOG

It's Universal

Temperature, Pressure, Humidity, Conductivity, pH, PPM, RPM, Dissolved O$_2$, %CO$_2$........ Let it be any Parameter.

It's Communicable

RS 232 / RS 485 Serial Port, Centronix Port Modbus, Profibus...... Let it be any Protocol.

It's Modular

1 to 64 channels..... Let it be any application.

DigiLog Scanner plus Recorder

Process Precision Instruments

Your Partner in Achieving Quality

3, Gr. Flr., Poddar Bldg. No. 1, Nr. Sandhurst Rd. Rly. Stn., Mumbai - 400 009
Tel : 372 05 07 ● Telefax : 375 15 72 ● e-mail : ppibom@vsnl.net